

REPORT

FINAL REPORT

Evaluation of the Non-Formal Skills Development Sub-Activity of the Millennium Challenge Corporation's Compact with the Government of El Salvador

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LIST OF ACRONYMS

CIDE	Consortium International de Développement en Éducation (International Consortium for Educational Development)
DIGESTYC	Dirección General de Estadísticas y Censos (General Office for Statistics and Censuses)
EHPM-ZN	Encuesta de Hogares y Propósitos Múltiples-Zona Norte
ERR	Economic Rate of Return
FOMILENIO	Fondo del Milenio (Millennium Fund)
FTE	Full-Time Equivalent
HÁBIL	Programa de Habilitación para el Trabajo (Workforce Training Program)
INSAFORP	Instituto Salvadoreño de Formación Profesional (Salvadoran Institute for Professional Training)
MCA	Millennium Challenge Account
MCC	Millennium Challenge Corporation
MINED	Ministry of Education
PILAS	Plan de Inserción Laboral y Autoempleo Sostenible (Job Placement and Sustainable Self-Employment Plan)
SIREB	Sistema de Información y Registro de Beneficiarios (Beneficiary Information and Registration System)
TVET	Technical and Vocational Education and Training

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EXECUTIVE SUMMARY

A. Introduction

This report presents labor market outcomes for participants in the Non-Formal Skills Development Sub-Activity of the Millennium Fund of El Salvador (FOMILENIO). This Sub-Activity was a component of the Millennium Challenge Corporation's (MCC) compact with the government of El Salvador, a \$461 million initiative in effect from 2007 to 2012. The compact was designed to fuel economic growth and reduce poverty in El Salvador's Northern Zone by improving human and physical capital, increasing production and employment, and reducing travel cost and time within the country and within Central America more broadly. The compact had three main projects: (1) the Human Development Project, (2) the Productive Development Project, and (3) the Connectivity Project.

The Human Development Project, which involved a total investment of \$84 million, encompassed the following two activities: (1) the Education and Training Activity, which invested nearly \$28 million (USD) to increase the quality of and access to professional and technical education and training; and (2) the Community Development Activity, which was designed to expand access to sanitation facilities, electricity, potable water services, and community infrastructure in El Salvador's Northern Zone. The Education and Training Activity was expected to improve the technical skills of Northern Zone residents through formal and non-formal training. The Non-Formal Skills Development Sub-Activity, which was part of the Education and Training Activity, represented a \$4.1 million investment in short-term training courses.

The Non-Formal Skills Development Sub-Activity was designed to provide short-term training to vulnerable populations in El Salvador's Northern Zone who were unable or unlikely to seek formal education. According to the MCC–El Salvador compact, this included women, at-risk youth, and the poor. The Sub-Activity funded short-term courses throughout the Northern Zone in common trades, such as tailoring, baking, and electrical installations. The short-term goal of the Sub-Activity was to increase the education and skill levels of at-risk populations in the Northern Zone. Medium-term goals were to decrease economic barriers to labor force entry while increasing personal income, labor market participation, and self-employment rates of vulnerable populations. Finally, the Sub-Activity's long-term goal was to spur economic growth and reduce poverty in the Northern Zone. To support participants in these courses, as well as other educational programs offered through the Human Development Project, FOMILENIO developed and implemented the Job Placement and Sustainable Self-Employment Plan (PILAS, in Spanish) as a complement to the Sub-Activity. PILAS provided job placement support for participants seeking self-employment or traditional employment. From 2011 to 2012, over 10 percent of participants in the Sub-Activity also participated in PILAS. Table ES.1 summarizes the key characteristics of the Sub-Activity.

Table ES.1. Key characteristics of the Non-Formal Skills Development Sub-Activity

Objective	Increase the incomes of participants in the non-formal skills training courses
Target population	Vulnerable populations of the Northern Zone, including women, at-risk youth (those affected by migration or gang participation), and the poor
Implementing parties	FOMILENIO, CIDE, INSAFORP, and contractors who delivered courses
Activities and assistance	Short, non-formal skills training courses on subjects including baking, cooking, tailoring, bricklaying, and electrical installations, among others
Time frame	2009 to 2012
Total funding	Original budget: \$5,005,000; revised budget: \$4,063,533; actual expenditures: \$4,119,057
Participants	Target: 8,400 (modified from an original target of 13,000); actual: 11,876
Completion rate	Target: 82 percent (equivalent to 6,888 course graduates); actual: 95 percent

Sources: Millennium Challenge Account (MCA) El Salvador Monitoring and Evaluation Plan, September 2012. Total funding came from the MCC Quarterly Financial Report, September 2012.

CIDE = International Consortium for Educational Development; INSAFORP= Instituto Salvadoreño de Formación Profesional (Salvadoran Institute for Professional Training)

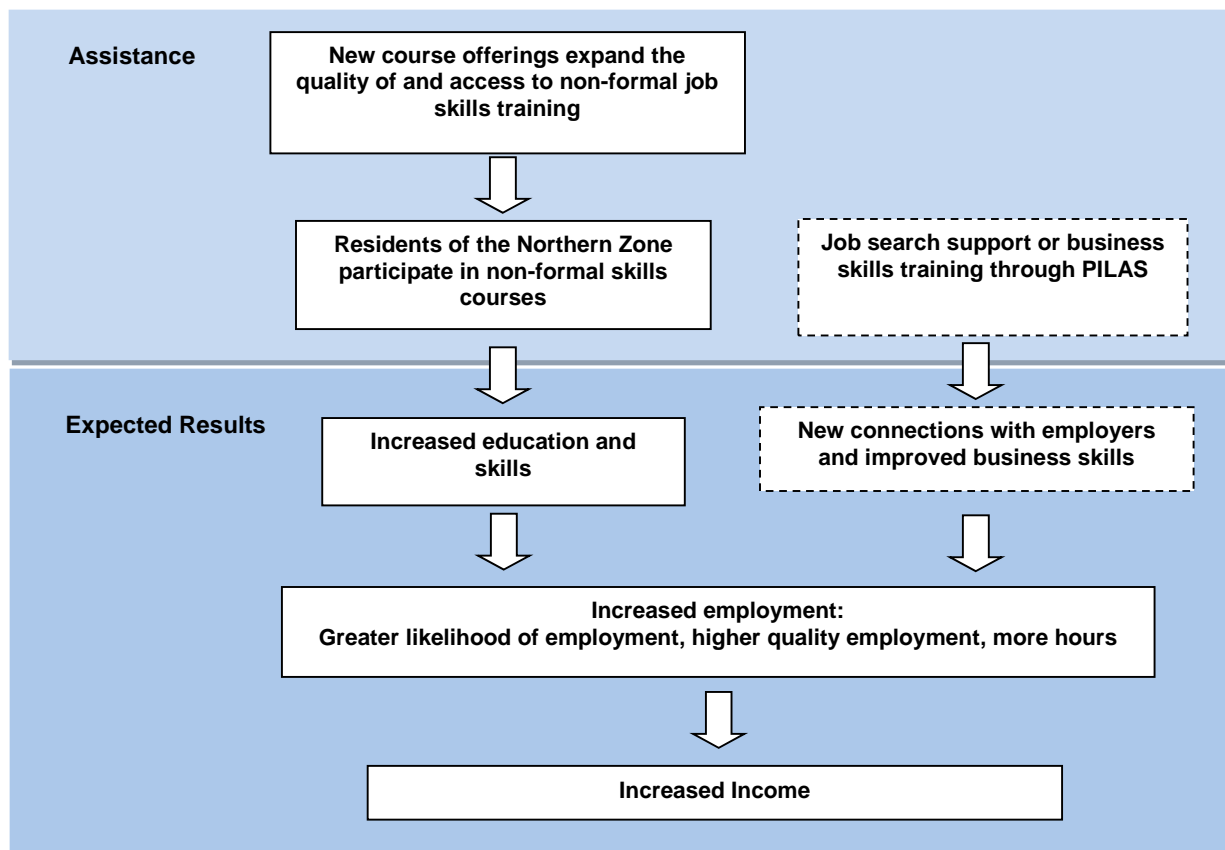
B. Research questions and evaluation design

MCC is interested in understanding the performance of the Sub-Activity. As described in more detail in this report, we developed a logic model (Figure ES.1) that provided the framework guiding our evaluation. Specifically, the logic model describes the specific interventions delivered to the target population and the expected results of these interventions on several key outcomes.

The logic model shows how the Sub-Activity was expected to increase the quality and availability of non-formal skills training in the Northern Zone. First, residents of the Northern Zone would participate in the non-formal skills training. Training participants would acquire new skills through the courses, which they could then use to obtain new or higher quality salaried employment or self-employment, in turn generating additional income. In addition, job search support and business skills training provided through PILAS would assist participants in finding salaried employment or starting their own businesses.

Rooted in this logic model, our evaluation addresses the following three main research questions:

1. What were course participants' demographic and socioeconomic characteristics?
2. How was the Sub-Activity planned and implemented? What were implementation challenges and facilitators?
3. How did participants' labor market outcomes and income change from before beginning non-formal skills courses to approximately one year after completing the courses?

Figure ES.1. Logic model for the Non-Formal Skills Development Sub-Activity

Source: Mathematica Policy Research

Note: Boxes with dashed lines indicate additional assistance and expected results for PILAS participants.

Our analysis also addresses the following secondary questions:

- Among participants who were unemployed before starting the courses, to what extent did they find employment after the course?
- What were the most common employment transitions (for example, moving from unemployment to salaried employment) after completing the course? Was a transition to self-employment more common than one to salaried employment?
- What were the most common occupations for the newly employed?
- Did changes in participants' incomes vary according to the type of employment they found?
- How did participants' labor market outcomes change over the same period for subgroups, such as men and women, younger and older participants, and participants with different levels of education?
- Did changes in participants' labor market outcomes vary depending upon the type of course they completed?
- How did labor market outcomes change before and after the course for PILAS participants?

- According to participants, what were facilitators and barriers to training completion and employment?

Evaluation design. To examine the effects of the Sub-Activity on employment and personal income, we used a pre-post survey design. Using this design, we compared outcomes of enrolled participants before the start of their first course with the outcomes of the same individuals approximately one year after their first course ended. All information for this comparison was gleaned from one survey, collected approximately one year after trainees completed their first course. Hence, data corresponding to the period before the courses started were gathered using retrospective survey questions. We should note that this is a performance evaluation, not an impact evaluation. We cannot determine the impact of the Sub-Activity with this pre-post design because it does not provide us with a valid counterfactual or estimate of what would have happened in the absence of the intervention.

We selected this design for several reasons. Stakeholders initially decided that there would be no evaluation of the Sub-Activity, as rigorous designs were not feasible and MCC staff did not request a formal implementation study. Thus, no evaluation design was in place at the time of the full rollout of the Sub-Activity. In 2011, MCC reconsidered and requested an evaluation, but at that point the Sub-Activity already had served more than 90 percent of the target number of participants. Furthermore, there were no data that could be used to select a credible comparison group, other than a comparison of each individual's outcomes before and after the start of the Sub-Activity. However, MCC had hired the International Consortium for Educational Development (CIDE, for its initials in French), which was also providing oversight for the Sub-Activity, to conduct a survey of a sample of beneficiaries at approximately one year after they had completed the courses. To take advantage of these existing data, Mathematica Policy Research staff decided to conduct a performance evaluation using the contracted survey as the main data source. The evaluation used the pre-post design, which provides descriptive information about how participants' labor market outcomes evolved after participating in the Sub-Activity's training.

In 2013, we completed an interim report on the Sub-Activity (Campuzano et al. 2013). At that time, we presented findings based on the first four of eight rounds of survey data collection, which included results for individuals who completed courses between May 2009 and December 2010. This report focuses on results for the final four rounds of data collection, which includes participants who completed courses between January 2011 and March 2012. Figure ES.2 provides a graphical representation of when participants from each survey round enrolled in the non-formal training and when they were surveyed.

In both the interim report and this report, we use administrative data as well as survey data collected from course participants to describe the Sub-Activity implementation and the outcomes observed for course participants. Administrative data came from the Beneficiary Information and Registration System (SIREB, in Spanish), which FOMILENIO maintained. Survey data comes from a sample of participants surveyed one year after they completed their first course—an average of 16 months following the start of the first course. The survey was collected in eight rounds, as shown in Figure ES.2. In each round, a random sample of all participants who completed the courses during the corresponding period were surveyed. The survey included questions about respondents' current employment and income (one year post-training), as well as their employment and income at the time they enrolled in the course (pre-training). CIDE was responsible for the

data collection of the first six rounds and wrote the first draft of the survey to gather monitoring data. Mathematica revised and approved the survey instrument. The data collector for the last two rounds was the General Office for Statistics and Censuses (DIGESTYC, in Spanish). Before round 2 data collection, the instrument was modified to capture more detailed information on income and employment at post-training and to include questions for pre-training values. The instrument was modified again before round 7 to make questions about pre-training employment and income identical to questions about post-training employment and income, given difficulties interpreting data from prior survey rounds. As a result of these changes, employment and income estimates for rounds 7 and 8 are likely more accurate than estimates for previous rounds.

Figure ES.2. Time line of implementation and data collection, by round

2009	2010	2011	2012	2013	
	R1: Course completion	1 year	R1: Survey		
	R2: Course completion	1 year	R2: Survey		
	R3: Course completion	1 year	R3: Survey		
		R4: Course completion	1 year	R4: Survey	
		R5: Course completion	1 year	R5: Survey	
		R6: Course completion	1 year	R6: Survey	
		R7: Course completion	1 year	R7: Survey	
			R8: Course completion	1 year	R8: Survey

Source: Mathematica internal documentation.

Note: Date ranges are approximate.

This pre-post evaluation design enables us to describe changes in participants' employment and income. It does not, however, permit the estimation of the training's causal effects on participants' outcomes. Without a valid comparison group, we cannot separate the impact of the training from the simultaneous effects of concurrent events, such as changes in the macroeconomic context or changes in employment status or income that participants would have experienced in the absence of the Sub-Activity. Because it is not possible to determine the effect of factors unrelated to non-formal skills courses on post-training employment and income, we cannot say to what extent the pre-post differences represent a biased estimate of the Sub-Activity's impacts.

To answer the research questions described above, we report information on course participants' type of employment, hours worked per week, and income, both at the time they enrolled in the Sub-Activity and one year after they completed short-term courses. We then present the differences in outcomes before and after the training and the results of the tests of statistical

significance of these differences. Finally, we show subgroup results by gender, level of education, and type of course.

C. Evaluation findings

1. Participants characteristics

This report focuses on the results for the last four rounds of training participant surveys. The sample consists of 1,160 individuals who completed their first non-formal skills training course between January 2011 and March 2012 and who completed a follow-up interview in rounds 5 to 8. Individuals in this sample were an average of 30 years old. Sixty-seven percent of respondents were women and 34 percent of respondents (or approximately half the women) were unemployed women between 17 and 35 years of age at baseline. Eleven percent (or approximately one-third of male respondents) were unemployed men between 17 and 35 years of age at baseline. The sample is predominantly rural; only 30 percent of respondents lived in an urban area at the time of the survey. Survey respondents had 2.9 years of work experience at baseline and 8.1 years of education, on average, at the time of the follow-up survey.

2. Implementation findings

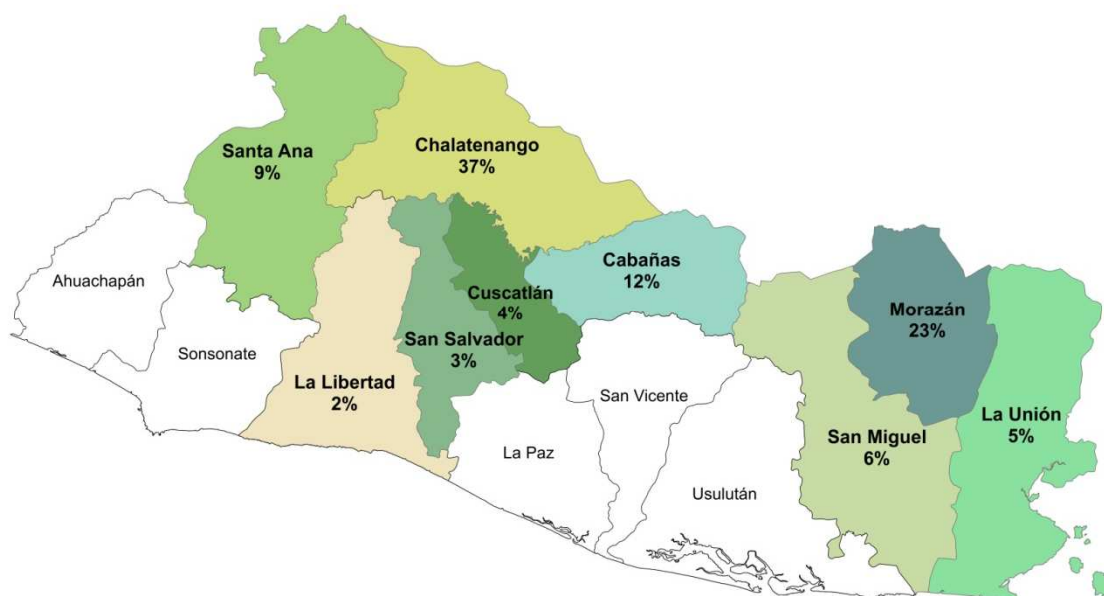
CIDE was the primary entity contracted to provide technical support for the Sub-Activity, the Salvadoran Institute for Professional Training (INSAFORP, in Spanish) was the principal implementing entity, and FOMILENIO was responsible for the oversight and management of the Sub-Activity. The Sub-Activity was modeled on the Programa de Habilitación para el Trabajo (HÁBIL), a training program implemented by INSAFORP and still in operation today. The training courses offered through the Sub-Activity were expected to expand the availability of the type of courses that HÁBIL provided, with a special focus on offering training in areas with potential for subsequent employment. During 2008, CIDE conducted a needs assessment of the Northern Zone and developed an implementation plan for the Sub-Activity (CIDE 2008). CIDE staff initially identified economic sectors with potential for contracted employment or self-employment, and identified 45 courses as high priority due to their potential synergies with other projects implemented by FOMILENIO. These included courses in cooking, baking, sewing and tailoring, bricklaying, and electrical installations, among others. According to stakeholders, some degree of program flexibility was required to accommodate the typical constraints that these vulnerable populations faced. Courses were offered on a demand-only basis, with classes scheduled according to participant interest and availability.

Overall implementation was successful—as assessed by several measures—and exceeded MCC’s targets for enrollment and completion. From 2009 to 2012, a total of 11,310 individuals completed these short-term courses, exceeding MCC’s target of 6,888 course graduates. Furthermore, the courses had a 95 percent completion rate, also exceeding MCC’s target rate of 82 percent (SIREB data and the Millennium Challenge Account (MCA) Monitoring and Evaluation Plan, September 2012).

Courses were offered in nine departments throughout El Salvador’s Northern Zone. The department with the highest course concentration was Chalatenango, where 37 percent of all courses were offered. This was followed by Morazán, with 23 percent of courses, and Cabañas, with 12 percent. The geographic distribution is shown in Figure ES.3. The five most popular courses overall were (1) tailoring school uniforms, (2) baking, (3) cooking, (4) electrical

installations, and (5) pastry making. For participants surveyed during the last four rounds of data collection, the five most popular courses were (1) tailoring school uniforms, (2) pastry making, (3) auto mechanics, (4) baking, and (5) cooking. Beneficiaries selected which courses to attend; they were able to attend more than one course. In some cases, beneficiaries were encouraged to attend multiple courses. For example, electricians who had taken a first course were encouraged to attend a second course that would help them complete all the steps to obtain an official certification.

Figure ES.3. Geographic distribution of non-formal skills courses, by department, all data collection rounds, May 2012



Source: SIREB, May 2012.

Note: The sample consists of 13,073 participants who had started a course as of May 2012. This includes all course participants, not just survey respondents.

Throughout the Sub-Activity's implementation period, notable challenges included (1) a lack of suitable firms to provide new training courses, (2) stringent contracting requirements that required bids from at least three potential implementing firms, (3) a lack of implementer experience in the Northern Zone, and (4) a lack of implementer capacity regarding labor market insertion and self-employment. To some extent, these challenges were mitigated by the following implementation facilitators: (1) close supervision by CIDE and FOMILENIO staff, (2) strong interest and commitment from participants and local authorities, and (3) the use of starter kits distributed at the outset of courses.

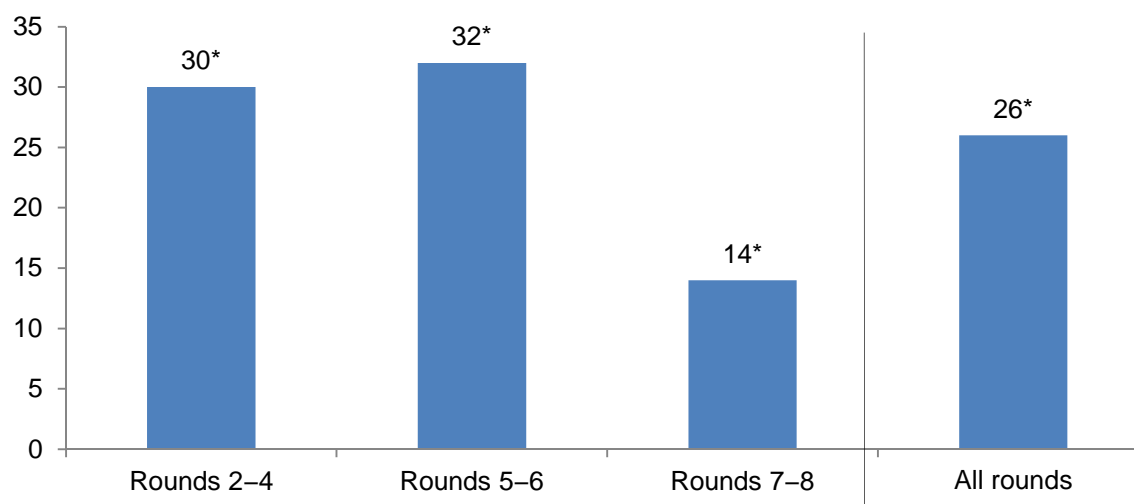
PILAS began its implementation in July of 2011 and operated for approximately one year. The original time line was 18 months of implementation. However, due to the compact's end, the implementation time line was reduced to 12 months. FOMILENIO hired three contractors to implement PILAS; two of those implementers worked with participants of the Sub-Activity. All the contracts between the implementers and FOMILENIO were based on payment by results.

Regarding lessons learned from the implementation, stakeholders noted that Sub-Activity implementers often failed to assess whether participants' interests and commitment made them a good match for the courses in which they applied. In addition, some courses had strong participant interest but little potential for labor market insertion, and vice versa—suggesting that a sizable portion of courses failed to successfully match participant interest with labor market demand. However, stakeholders noted that information on labor demand in the region was not available and, therefore, was not used to inform course offerings.

3. Program outcomes

To estimate the potential effects of the Sub-Activity, we compared participants' labor market outcomes before beginning the training courses to those observed one year after completing their first course. Figures ES.4 and ES.5 summarize quantitative results for rounds 2 to 4 (also presented in the interim report), the results for rounds 5 to 8 (the focus of this report), and overall results. Results from round 1 are not included because of limitations of the survey used in that round.

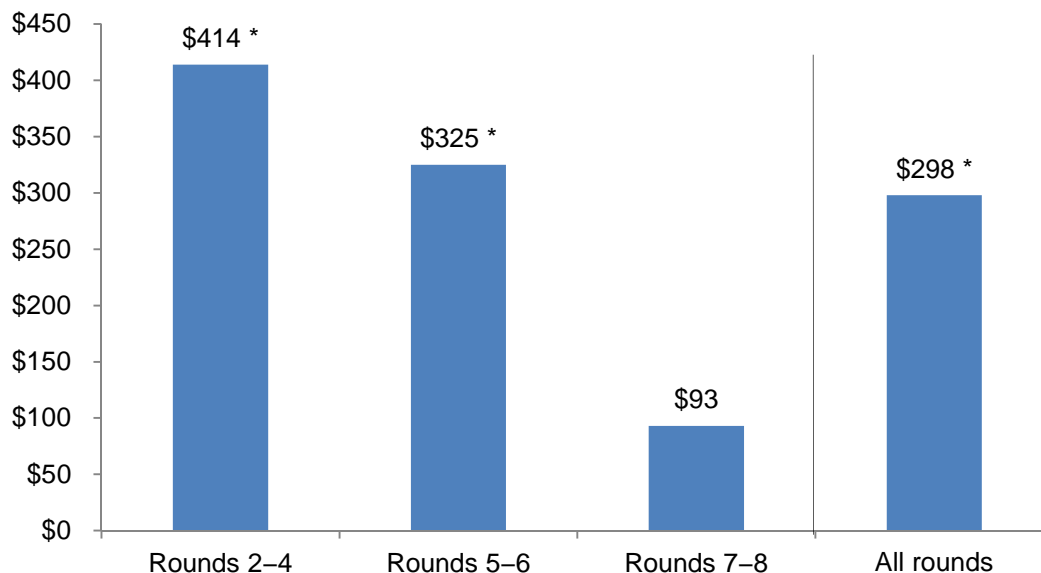
Figure ES.4. Post-training increase in participants' employment, by survey round (percentage points)



Source: Non-Formal Training Survey, rounds 2 to 8.

*Statistically significant at 1 percent.

Figure ES.5. Post-training increase in participants' net annual income, by survey round



Source: Non-Formal Training Survey, rounds 2 to 8.

*Statistically significant at 1 percent.

Key findings on employment and income for survey rounds 5 to 8 include the following:

- **Participants' employment rates increased significantly one year after completing their first non-formal skills training course, but employment growth was smaller in the last two rounds.** Employment rates grew by 32 percentage points in rounds 5 and 6 and by 14 percentage points in rounds 7 and 8. Employment growth in all rounds was driven by higher self-employment and salaried employment. However, growth in self-employment was lower in the last two rounds.
- **The average number of hours worked per week increased significantly one year after the training in all rounds, but participants still were working only part-time, on average.** In rounds 5 and 6, the average number of hours worked weekly increased by 7.6 hours (from a pre-training level of 11.8) and by 4.7 hours in rounds 7 and 8 (from 15.1 hours pre-training).
- **Income increased significantly in rounds 5 and 6, but not in rounds 7 and 8.** We find significant increases in total annual income in rounds 5 and 6. During these rounds, participants' average income increased from \$586 to \$911 (an increase of \$325). Total annual income did not change significantly when we pooled data for rounds 7 and 8. However, round 7 participants experienced an increase in total income of \$254, whereas round 8 participants experienced no statistically significant change in total income (see Table A.3 in the Appendix).

a. Results across all survey rounds

Examining data from rounds 2 to 8, we find statistically significant increments in employment rates in all rounds (Figure ES.4). Pooling the data for all rounds, we find that employment

increased by 26 percentage points for all rounds. This change is statistically significant. However, there is heterogeneity between rounds. In rounds 2 to 6, employment grew near 30 percentage points, whereas in rounds 7 and 8, it grew by 14 percentage points. It is likely that pre-post changes in employment in rounds 7 and 8 are smaller, in part, as a result of the revised survey instrument, which likely provided a more accurate estimation of pre-post employment changes.

The employment rates reported here are not directly comparable with national or regional unemployment rates because we do not construct our rates based on the economically active population. Rather, we base our rates on the full sample regardless of whether they are actively looking for a job. However, as a reference, annual employment rates in the Northern Zone from 2010 to 2012 (which corresponds to survey rounds 2 to 6) were stable during this period at 93.5 percent, 93.6 percent, and 93.5 percent, respectively. These data come from the national household survey in El Salvador, the Encuesta de Hogares y Propósitos Múltiples-Zona Norte (EHPM-ZN).

Regarding income, we find statistically significant growth in total annual income in rounds 3 to 6, but not in rounds 7 and 8. This result is driven by a lack of income growth in round 8, despite statistically significant income growth in round 7. When all rounds with income data are pooled, we find that total net annual income increased by \$298 on average after completing a course. This change is statistically significant. However, it is likely that these estimates are biased upward due to the limitations of the instrument used in rounds 2 to 6. As a reference, according to EHPM-ZN, monthly household income in the Northern Zone was \$381, \$387, and \$404 for 2010, 2011, and 2012, respectively. Despite the possible upward bias for both employment and income, it seems that the Sub-Activity contributed to higher employment and income independent of regional trends in the Northern Zone.

b. Additional findings

We also examined employment and income changes by (1) the type of course completed, (2) gender, (3) initial level of education, (4) age group, and (5) PILAS participation. The main results for rounds 5 to 8 are the following:

- **Employment increased for the most popular courses in rounds 5 to 8, but income increased only for participants in the tailoring and pastry making courses.** Tailoring school uniforms, pastry making, automobile mechanics, cooking, and baking were the most popular courses in rounds 5 to 8. On average, employment increased significantly for participants in these courses in rounds 5 to 8. Overall, bakers, cooks, and auto mechanics were more likely to find salaried employment, whereas those who studied tailoring or pastry making were more likely to find self-employment in some rounds. Total income increased significantly for participants in the tailoring and pastry-making courses, but not for the other courses. Relatively high income gains for the tailoring course participants were likely related to their ability to secure contracts to provide the Ministry of Education (MINED) with school uniforms following completion of the tailoring course.
- **Employment increased significantly for men and women in rounds 5 to 8, but income increased only for women in rounds 5 and 6.** Increases in employment were driven by both salaried employment and self-employment for women, but only by salaried employment for men. Furthermore, the gender gap in income narrowed after the course. In rounds 5 and 6,

women's total annual income increased significantly, but men's did not. In pooled data for rounds 7 and 8, income did not increase significantly for either men or women.

- **Participants under the age of 36 saw larger gains in employment than older participants in rounds 5 to 8, although employment grew for older participants as well.** Income increased for both groups in rounds 5 and 6. The larger gains for younger participants were driven by gains in salaried employment. Although total annual income grew significantly for younger and older participants alike in rounds 5 and 6, principal income did not increase significantly for older participants. In pooled estimates for rounds 7 and 8, income did not increase significantly for either group.
- **Employment increased significantly for participants with all levels of education in rounds 5 to 8.** Income increased significantly for all but the most educated group in rounds 5 and 6. Post-training employment levels increased uniformly across all education groups, but more highly educated participants saw larger increases in salaried employment than less educated participants did. In survey rounds 5 and 6, we found statistically significant increases in total annual income for all educational groups, except postsecondary graduates. In rounds 7 and 8, however, the only statistically significant change in income was higher total income for the upper secondary group after training.
- **Employment increased significantly for PILAS participants, driven by growth in salaried employment.** In addition, all types of income increased for PILAS participants—particularly secondary income. PILAS participants who completed non-formal skills courses experienced larger growth in secondary income than non-PILAS participants who completed courses. However, this result is difficult to interpret because PILAS was designed to improve participants' primary employment outcomes.

c. Interpretation challenges

Modifications to the survey instrument complicate the interpretation of these results. Smaller increases in employment and income in rounds 7 and 8 than in previous rounds may reflect changes in the survey instrument. But they also likely reflect potential differences in training cohorts, training courses, or labor market conditions in earlier versus later implementation years. Note that post-training employment rates (and income to some extent) are lower in rounds 7 and 8 than in previous cohorts. Because questions on post-training outcomes were uniform throughout all survey rounds, we can conjecture that course participants in 2011 and 2012 (rounds 7 and 8) may have been less motivated or skilled than participants in earlier rounds, or that they may have faced labor markets that were already saturated with graduates of previous non-formal skills courses. Some combination of these factors, as well as other socioeconomic factors, may explain the lower post-training employment rate of participants in rounds 7 and 8 (60 percent) versus rounds 5 and 6 (69 percent).

4. Policy implications

The results presented here show that there is a demand for non-formal skills training in the Northern Zone of El Salvador. Furthermore, the fact that 95 percent of those enrolled in a non-formal skills course completed it suggests that the approach taken in the implementation of the Sub-Activity was feasible for the intended beneficiaries. FOMILENIO, INSAFORP, and CIDE's efforts to provide training courses in places and at times that were convenient for participants may

have been important in this success. Additionally, providing topics of interest to participants that were linked to employment opportunities in the area, such as the tailoring of school uniforms, may have contributed to the significant growth in employment and income observed among them.

Participant feedback may be useful for implementers in identifying strategies to improve course effectiveness. Overall, the courses were popular among participants (survey respondents rated the courses 4.5 out of 5, on average). However, the majority of survey respondents in the last four rounds indicated that they would have benefited from more time for training and more opportunities to practice what they were learning. Some of these participants may have satisfied their desire for more time by taking a second course. But in other cases, it may have been beneficial to extend the courses by more days or hours, or to introduce an internship or on-the-job component to some courses.

Participant satisfaction is not enough to justify funding a training program, however; the program also must be effective in improving participants' lives. The evidence presented here is consistent with the possibility that the Sub-Activity's training activities contributed to improved labor market outcomes for participants. These changes were of a great enough magnitude that they may also have translated into improvements in participants' well-being.

The success of the Sub-Activity is not limited to a specific subgroup. Although the scale of the apparent effect varied, increases in employment were broad based: employment increased significantly after training for men, women, older, younger, and more and less educated participants. The diversity of the population that appears to have benefited from the training suggests that the training may be successful if expanded to new areas within El Salvador and to other contexts in the region. If policymakers must focus on specific subgroups due to budget constraints, these results suggest that they should consider prioritizing women and youth—two subgroups that tend to have lower baseline employment and income levels.

Based on the relatively large pre-post gains in income among tailoring course participants—who secured large school uniform contracts with MINED following their completion of courses—this analysis suggests that offering participants courses designed to equip them to meet immediate market demand may have strong potential for gains in employment and income. To be implemented broadly, such a demand-based approach would require strong involvement from potential employers or buyers early in the design process—both in the selection of courses as well as the design of the curricula.

PILAS participants' changes in employment and income were similar to those of PILAS non-participants. Therefore, we cannot conclude that PILAS improved participants' employment and income, over and above the courses themselves. However, a program linking course graduates with potential employers has strong face validity, given information constraints and a general lack of job coaching, job placement services, and seed capital in developing countries. If possible, efforts to link potential employers with course participants even earlier in the training process—through internships that occur concurrently with courses, for example—could provide a link between employers and future employees that might improve employment outcomes. Such an approach would also directly address the participants' recommendation of more training and practice time during courses, as well as ensure that participants learn skills desired by potential employers.

I. INTRODUCTION AND OVERVIEW OF THE COMPACT AND THE INTERVENTION EVALUATED

A. Introduction

In 2006, the Millennium Challenge Corporation (MCC) reached an agreement with the Government of El Salvador on a five-year, \$461 million compact to be executed between September 2007 and September 2012. The compact was designed to reduce poverty through strategic investments in agricultural production, rural business development, transportation infrastructure, education, and public services, with a strategic focus on El Salvador's Northern Zone (MCC 2012). This compact included three projects: Human Development, Productive Development, and Connectivity. MCC contracted with Mathematica Policy Research to evaluate the effectiveness of three activities under two of the compact's projects: the Education and Training Activity under the Human Development Project, and the Business Services and Investment Support Services Activities under the Productive Development Project. This report presents outcomes for participants in the Non-Formal Skills Development Sub-Activity (the Sub-Activity), which falls under the Education and Training Activity.

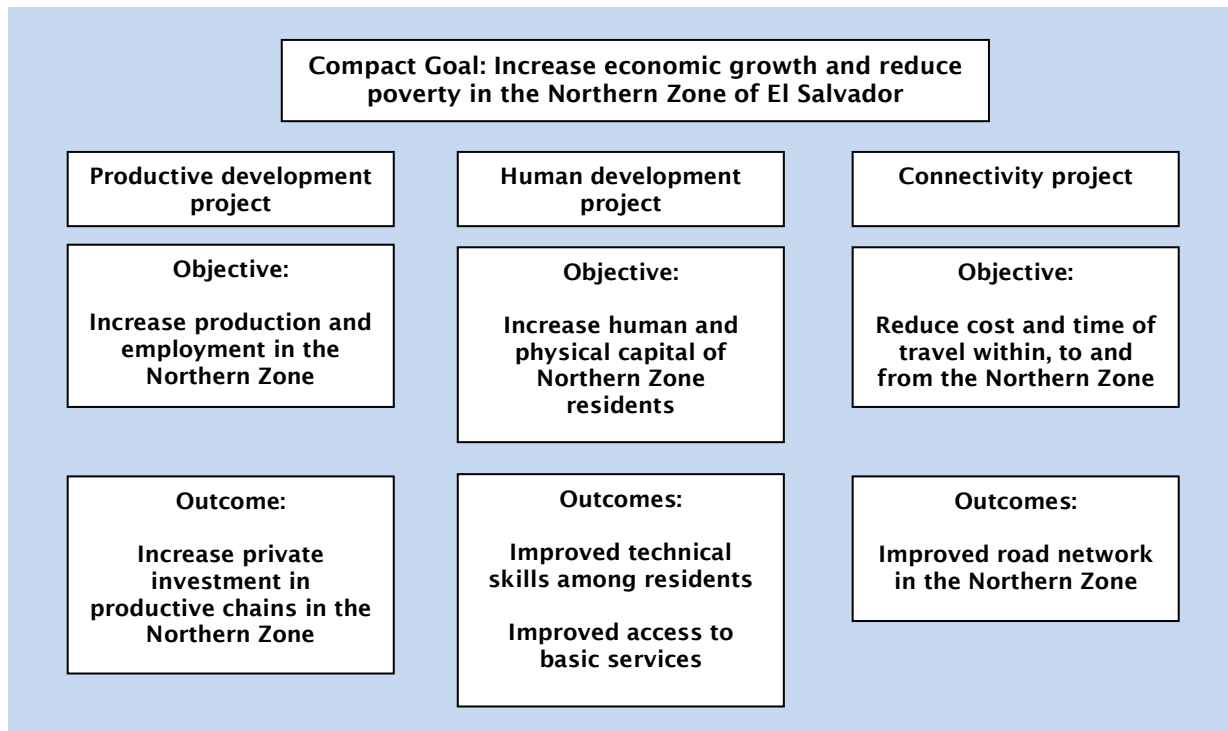
This report is organized into five chapters. In this introduction, we present an overview of MCC's compact with the Government of El Salvador and the Sub-Activity, as well as the logic behind each. Chapter II reviews the literature on technical and vocational education and training (TVET). Chapter III describes the evaluation design we use in this report. Chapter IV summarizes the implementation of the Sub-Activity and the Job Placement and Sustainable Self-Employment Plan (PILAS, in Spanish). Chapter V presents the findings of the analysis.

B. Overview of the compact and the intervention evaluated

The El Salvador compact was focused on the country's Northern Zone because of the area's high rates of poverty, the heavy impact of the country's internal conflict in the area during the 1980s, and the area's potential for sustainable development (Millennium Challenge Account 2012). The primary goal of the compact was to increase economic growth and reduce poverty in the Northern Zone. The compact's projects were designed to achieve the following goals:

- Human Development Project: Increase human and physical capital of residents to take advantage of employment and business opportunities.
- Productive Development Project: Increase production and employment in the Northern Zone.
- Connectivity Project: Reduce travel cost and time within the Northern Zone, the rest of the country, and the region (Millennium Challenge Account 2012).

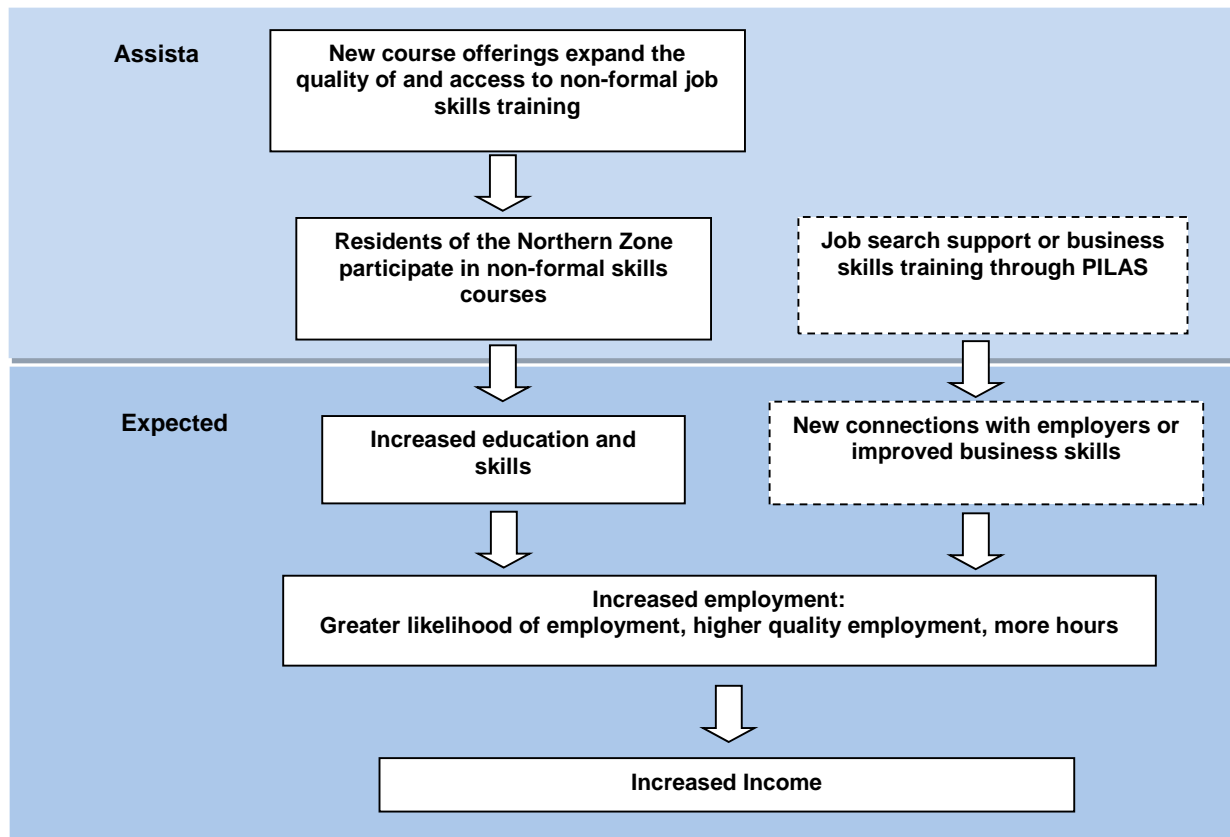
Figure I.1 shows the objective and outcomes associated with each of the compact's three projects, according to the compact's logic model. This shows that the objective of the education components of the Human Development Project was to improve the technical skills of residents of the Northern Zone through formal and non-formal training. These educational activities were complemented by the Productive Development and Connectivity Projects to increase economic growth and reduce poverty in the Northern Zone.

Figure I.1. El Salvador compact logic model

Source: Millennium Challenge Account—El Salvador. Monitoring and Evaluation Plan. September 2012, Version 6.

The Human Development Project encompassed the following two activities: (1) the Education and Training Activity, which invested nearly \$28 million (USD) to increase the quality of and access to professional and technical education and training; and (2) the Community Development Activity, which was designed to expand access to sanitation facilities, electricity, potable water services, and community infrastructure in El Salvador’s Northern Zone.

The Non-Formal Skills Development Sub-Activity was one of the three sub-activities of the Education and Training Activity. This Sub-Activity had a budget of \$5 million (USD) to provide short-term training to vulnerable populations in the Northern Zone who were unable or unlikely to seek formal education. The training consisted of short-term courses offered throughout the Northern Zone in such common trades as baking, bricklaying, and electrical installations. The short-term goal of the Sub-Activity was to increase the education and skill levels of at-risk populations in the Northern Zone. According to the El Salvador compact, these populations included women, at-risk youth, and the poor. The medium-term goals included decreasing economic barriers to labor force entry and increasing vulnerable populations’ personal income, labor market participation, and self-employment rates. Last, the Sub-Activity’s long-term goals were to spur economic growth and reduce poverty in the target area. Figure I.2 provides the logic model for the Sub-Activity and for PILAS, a set of complementary services in which some course participants participated. PILAS is described in more detail below.

Figure I.2. Non-Formal Skills Development Sub-Activity logic model

Source: Mathematica Policy Research. Boxes with dashed lines indicate additional assistance and expected results for PILAS participants.

The Salvadoran Institute for Professional Training (INSAFORP, in Spanish), a government agency dedicated to offering job skills training courses, was designated as the principal implementing entity for the Sub-Activity. INSAFORP was founded in 1993 under El Salvador's Professional Training Law to satisfy the country's needs for well-trained human resources. The Millennium Fund (FOMILENIO, in Spanish) was the entity responsible for the oversight and management of the Sub-Activity (as well as all other activities and sub-activities outlined in the compact). The International Consortium for Educational Development (CIDE, in French), a Canadian firm that specializes in designing and implementing education interventions in developing countries, was the primary entity contracted to provide technical support for the Sub-Activity. CIDE's work included assessing training needs in the Northern Zone's 94 municipalities, designing the training plan and courses, helping to monitor the Sub-Activity's implementation, contacting local organizations to facilitate participants' employment, and conducting surveys to evaluate the Sub-Activity. CIDE created the surveys used in the first two rounds of data collection and collected the data used for this report for the first six rounds of data collection. Although many organizations were involved in overseeing general program implementation, 12 contractors hired by FOMILENIO conducted all training courses during the Sub-Activity's implementation period.

Beginning in 2010, FOMILENIO and MCC formulated a labor market insertion program to complement the Sub-Activity: the Job Placement and Sustainable Self-Employment Plan (PILAS,

in Spanish). The objective of PILAS was to support productive employment for individuals in the Northern Zone who benefited from FOMILENIO's Human Development Project, including non-formal skills workshops, scholarships, enhanced technical middle schools, and a new postsecondary technical institute in Chalatenango. Established in early 2011, PILAS had a total budget of about \$458,000, with approximately \$187,000 allocated to participants of the Sub-Activity. CIDE was charged with monitoring PILAS' implementation, and three service providers were hired to implement the Sub-Activity. Two of these providers focused on non-formal skills training participants: the AGAPE Association of El Salvador served the Chalatenango region, and the Morazán Agency for Local Development Foundation (ADEL, in Spanish) focused on Morazán and the Northern Zone of the La Unión and San Miguel departments. Because FOMILENIO designed PILAS to be offered to all individuals who participated in non-formal skills courses, in this report we summarize PILAS implementation and assess the Sub-Activity's possible effect on employment and income outcomes. Thirteen percent of participants in rounds 5–8 participated in PILAS.

It is important to note that the non-formal training activity was implemented in the socioeconomic context of the Northern Zone of El Salvador, which, as stated in the MCC-El Salvador compact, contains one-half of El Salvador's poorest municipalities. In addition, formal educational attainment in the region is two years lower, on average, than in the rest of the country. Relevant to this analysis, industrial and commercial activity in the Northern Zone is low compared to other regions of El Salvador, contributing to relatively lower employment and household income among residents of the Northern Zone. According to the Office of Statistics and Census (DIGESTYC), unemployment in 2009 was 8 percent in the Northern Zone versus 7 percent in the entire country, and average household monthly income in the Northern Zone was \$384 compared to the national average of \$498 (EHPM 2009).

C. Link to ERR and beneficiary analysis

Before, during, and after a compact is completed, MCC completes an analysis to estimate the economic rate of return (ERR) of the compact as a whole as well as its associated projects and activities. The ERR analysis provides a comparison of the costs and benefits of an investment. The costs include financial expenses incurred by MCC and others in carrying out compact activities. Benefits include income increases for the country's population and increases in value added for the country's firms.

Before a compact begins, MCC must rely on existing data sources and assumptions when no data are available. As a compact is implemented, MCC updates its estimates of the ERR to reflect changes in compact activities or other parameters used to calculate the ERR. The data collected for this report may be useful for MCC in updating the parameters used to calculate the Sub-Activity's ERR. These inputs include the number of participants that enrolled in and completed courses, and changes in participants' employment and income before and after the training. In Chapter V, we discuss the assumed values MCC used for the ERR calculation when the compacted closed and compared them to the values we calculate based on data collected for this report.

II. LITERATURE REVIEW OF THE IMPACT OF TECHNICAL AND VOCATIONAL TRAINING FOR YOUTH

This evaluation of the Sub-Activity contributes to a growing literature on strategies to improve employment outcomes for youth in developing countries. We first provide a brief review of the literature on the impacts of vocational training similar to that offered through the Sub-Activity, and then identify evidence gaps our evaluation fills.

Although numerous evaluations estimate the effectiveness of job training programs, few rigorous studies identify their causal effects on participants' labor market outcomes. Tripney et al. (2013) conducted a systematic review of the evidence on technical and vocational education and training (TVET) interventions to improve the employability and employment outcomes of young people in low- and middle-income countries. The studies included in the review were from 10 upper-middle income countries, 2 lower-middle income countries and one low-income country. Eight of the 13 countries included are Latin American or Caribbean (El Salvador was not among them). Based on these 26 rigorous studies, the authors found that TVET programs had a significant positive effect on paid employment, formal employment, and monthly earnings. The effects on self-employment earnings and weekly hours worked were statistically non-significant. The review suggests that youth employment training may increase participants' probability of obtaining formal employment while decreasing their reliance on less formal self-employment. The combination of positive effects on formal employment and earnings, combined with no effect on hours worked, suggests that some youth may be switching from low-wage informal work to higher-paying formal employment.

In Chile, the Chile Califica program, considered a "second chance" program, provided basic education and or technical and vocational training. This program was found to increase wages and post-program education for participants (Cunningham et al. 2010). Ibararán and Rosas (2009) reviewed six "Jóvenes" programs from various Latin American countries (not including El Salvador) and found that these job training programs increased the employment rate among youth by up to 5 percentage points, with larger effects for women. The authors also found that participating in the job training program had a significant effect on participants' "job quality"—in most countries, participants' jobs were more likely to be formal and offer health insurance.

In El Salvador, INSAFORP conducted an evaluation of its skills formation program, Programa de Habilitación para el Trabajo (HÁBIL), which was used as a model for the Sub-Activity. Most of the results discussed in the study are a description of participants' outcomes after participating in the HÁBIL courses. But the study also discusses impact results for a small sub-sample of their study. A sub-sample of HÁBIL participants, in San Salvador and San Miguel, is compared to a sample of neighbors of the same age that did not attend any training courses. INSAFORP found that program participants were more likely to be employed after participating in the training, but had lower incomes (INSAFORP 2003). These results, however, should be interpreted with caution because the study did not show baseline equivalence on observable characteristics between treatment and comparison groups. Furthermore, as other quasi-experimental studies, the study cannot show these groups are similar on unobservable characteristics, which will be especially important when a group of participants that enrolled in training is compared to a group that never sought training.

The findings from our evaluation contribute to the literature on training programs, particularly demand-based skill training courses. Although it does not provide estimates of causal effects, it does provide descriptive evidence of the characteristics of participants in the Sub-Activity and the evolution of their employment and income outcomes after participating in the training program. This information may be useful to others considering implementing such a program. Additionally, this evaluation provides information on a more diverse sample of participants than many of the studies described above, which were focused on youth. The Sub-Activity also targeted non-economically active women and women heads of household, regardless of age. Our findings will contribute to a better understanding of these groups' experiences with non-formal training.

III. EVALUATION DESIGN

A. Evaluation questions and design summary

The logic model presented above in Figure I.2 describes the Sub-Activity's component activities and the expected immediate, medium-term, and long-term outcomes. The Sub-Activity was expected to increase access to and participation in non-formal job skills training courses for residents of the Northern Zone. Residents' increased education and skills were expected to lead to increased employment opportunities and income. Participants in the PILAS Program were expected to benefit further from job search support, connections with employers, and increased business skills, which also were anticipated to lead to increased employment opportunities and income. This evaluation offers insights into a series of research questions rooted in the logic model. Our main research questions ask the following:

- What were course participants' demographic and socioeconomic characteristics?
- How was the sub-activity planned and implemented? What were implementation challenges and facilitators?
- How did participants' labor market outcomes and income change from before beginning non-formal skills courses to approximately one year after completing the courses?

Our analysis also addresses the following secondary questions:

- What were the most common employment transitions (for example, moving from unemployment to salaried employment) after completing the courses? Was self-employment more common than salaried employment?
- Among the participants who were unemployed before starting the courses, to what extent did they find employment after the courses?
- What were the most common occupations for the newly employed?
- Did changes in participants' incomes vary according to the type of employment they found?
- How did participants' labor market outcomes change over the same period for subgroups, such as men and women, younger and older participants, and participants with different levels of education?
- Did changes in participants' labor market outcomes vary depending on the type of courses they completed?
- How did labor market outcomes change before and after the courses for PILAS participants?
- According to participants, what were facilitators and challenges to training completion and employment?

To answer these questions, we have identified a set of key outcome measures. Core employment outcome indicators include type of employment (unemployed, salaried employed, self-employed, otherwise employed) and level of employment (hours worked weekly). Income outcome indicators include net primary, secondary, additional, and total income. All income measures are annual. These key outcomes are defined in Table III.1.

Table III.1. Definitions of main outcome indicators from the non-formal training survey

Outcome	Definition	
Employment indicators		
	Pre-training	Post-training
Employed	Reported working at the time of enrollment in the course	Worked previous week or soon returning to work at the time of the survey
Self-employed	Owner, employer, or has own business	
Salaried employment	Reported a permanent or temporary salary	
Other employment	Employment other than self-employment or salaried employment. This could include being a member of a cooperative, unpaid work with a relative, an apprenticeship, domestic services, or other.	
Hours worked weekly	Number of hours worked per week	
Full-time equivalent (FTE)	FTE is a calculation that transforms the number of hours and days worked into what is considered a full-time job: eight hours of labor per day for 250 days in a year. For example, an FTE of 0.5 is a half-time job.	
Income indicators		
Total net annual income from principal economic activity ^a	Total net annual income (gross income minus investment costs ^b) from principal economic activity (in USD)	
Total net annual income from secondary economic activity	Total net annual income (gross income minus costs) from an economic activity outside of the aforementioned principal economic activity (in USD)	
Total additional annual income	Total net annual income from sources other than the principal and secondary economic activities. This includes the following: remittances, financial help from relatives or friends, retirement or pension fund payments, interest, inheritance, lottery, severance or retirement pay, government cash transfers, or in-kind benefits (in USD)	
Total net annual income	Total net annual income (gross income minus costs) from primary, secondary, and additional economic activities (in USD)	

^a Net income is calculated by subtracting any business-related costs from gross income. This is relevant for self-employed respondents.

To examine the effects of the Sub-Activity on employment rates and personal income, we used a *pre-post survey design*. With this design, we compared outcomes of participants before they enrolled in their first course with the outcomes of the same individuals approximately one year after they completed the course. All information for this comparison was gleaned from one survey, as pre-program data were gathered using retrospective survey questions.

We selected this design for several reasons. Stakeholders initially decided that there would be no evaluation of the Sub-Activity, as rigorous designs were not feasible and MCC staff did not express interest in an implementation study. Thus, no evaluation design was in place at the time of the full rollout of the Sub-Activity. In 2011, MCC reconsidered and requested an evaluation; at that point, however, the Sub-Activity already had served more than 90 percent of the target number of participants. Furthermore, there were no data that could be used to select a credible comparison group, other than a comparison of each individual's outcomes before and after the start of the Sub-Activity. Thus, the best available design was a pre-post design, in which the counterfactual—or what would have happened to participants in the absence of the training program—is comprised of the same participants before they were served by the program. We calculate the overall program effect as the before-after difference in the indicator of interest, and we use a two-tailed t-test to assess the statistical significance of this difference.

The pre-post survey design suffers from a key limitation: it does not permit the identification of the Sub-Activity's causal effects on outcomes of interest. Differences observed between participants' employment and income before and after participating in a training course do not provide an unbiased estimate of the Sub-Activity's impact on these outcomes because this design cannot control for events other than the training that also affect participants' employment and income. First, "regression to the mean" may introduce an upward bias in these estimates. That is, because people are more likely to choose to participate in vocational skills training when they are unemployed or underemployed, they also are more likely to have better outcomes one year after completing the training because they start from a position below their long-term mean. Second, the estimates may be upwardly biased due to selection effects—that is, individuals who choose to participate in vocational skills training may be highly motivated to improve their employment or income and likely to seek out new opportunities with or without the training. Thus, the improvements in outcomes may be due to the unique circumstances and characteristics of the participants rather than the training. Third, we cannot separate the effects of this Sub-Activity from other compact sub-activities occurring at the same time; thus, it is impossible to separate the contribution of each sub-activity to the difference in outcomes. Finally, overall changes in El Salvador's economy will contribute to individuals' employment and income outcomes. Whereas pre-post methods that also include data on a comparison group may isolate the impact of the intervention from the effects of other concurrent events in the economy on potential participants' lives, single sample pre-post approaches such as the one we use here do not. Data are not available to estimate the effects of these concurrent events. However, in Chapter V, we discuss the magnitude of nationwide changes in employment and household income observed in El Salvador during the time of the evaluation, and how these changes might influence the interpretation of our results.

In addition, in this particular design, data were collected with one survey conducted approximately one year after the participants completed the courses. The survey featured questions concerning two periods of time: before participants started their first course (pre-intervention) and at the time of data collection—approximately one year after participants completed their first course (post-intervention) and 16 months after the start of the first course. A primary concern with this type of measurement is recall bias, as the survey asked participants about a time period that was more than a year before the survey date. Thus, largely due to the difficulties inherent in asking detailed questions about a past time, questions about employment and income before training differ from those concerning the post-training period. However, this means that part of the pre-post changes could be related to the different questions, rather than real changes in key employment outcomes. As we discuss below, the instrument was modified in the last two rounds of the survey to ask the same questions at pre-training and at post-training. But, the tradeoff is that recall bias may cause measurement error on the pre-training values.

B. Methodology

To examine the effects of the Sub-Activity on employment rates and personal income, we compared outcomes of participants who completed a training course before the start of their first course with the outcomes of the same individuals approximately one year after the end of their first course. Although in the design memorandum (Campuzano and Blair 2011) we initially had proposed a regression analysis with adjustments for age, gender, and geographic location, we

decided to use unadjusted changes because it is unnecessary to control for participant characteristics in a pre-post design in which each participant serves as his or her “own control”.

We used two-tailed paired t-tests to measure the statistical significance of the differences between participants’ outcomes observed before and after the course. We took a different approach to assess whether there was a statistically significant change in participants’ employment after participating in the training because this is a categorical variable with four potential outcomes: unemployed, self-employed, salaried, or other employment. In addition to testing for a change in the probability of having each of these employment types individually by using a t-test, in the same way we tested for statistically significant changes in other variables, we used a chi squared test to determine whether the distribution of employment types changed after participating in the Sub-Activity. We report the results of the chi squared tests in notes below tables and figures that report changes in employment outcomes. For all outcomes, we present the difference between the outcome observed before and after the training and the p -value of the t-test of the statistical significance of this difference. We interpreted differences with p -values of less than 0.05 as significant. P -values are presented in all tables to enable the reader to identify the level degree of significance for any difference directly. In figures, we also indicate differences that are marginally significant at the 10 percent level.

C. Data and sample

The main data source for this study was a survey originally designed to obtain monitoring indicators that could be used to calculate the Sub-Activity’s rate of return and data for a follow-up study. In this section, we describe how the survey was conducted, the modifications for the instrument that occurred across rounds, and the study sample.

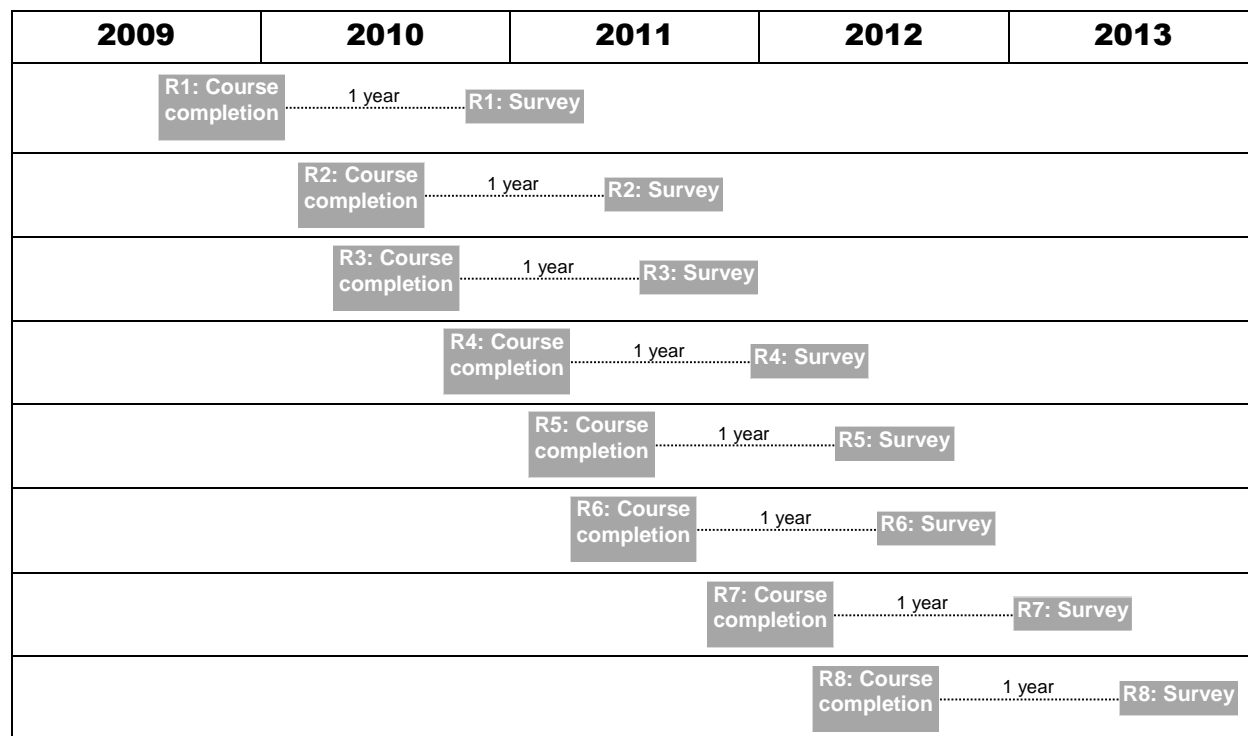
1. Survey description

The Sub-Activity offered courses from May 2009 until March 2012. The goal of the survey was to collect information on a sample of all participants approximately one year after they completed their first course. To ensure that all participants were interviewed approximately one year after completing their first course, the survey data were collected in eight rounds. CIDE, which originally designed the survey, was responsible for collecting the first six rounds, and the Dirección General de Estadísticas y Censos (DIGESTYC), under Mathematica’s supervision, was responsible for collecting rounds 7 and 8. A time line for course completion and data collection is presented in Figure III.1.

Data from the Beneficiary Information and Registration System (SIREB, in Spanish), collected by FOMILENIO, were used as the sample frame from which the survey sample for each round was drawn. The SIREB included contact and enrollment information on all participants in any of the Sub-Activity’s courses. Course participants were considered eligible for the survey if they had completed their first course one year earlier. Participants who had not completed a course, had completed more than one course, or were enrolled in another course at the time of the survey were excluded. These criteria were put in place to construct a sample that would be homogenous in exposure to the intervention and the time since that exposure. The sample frame was filtered for these characteristics using data from the SIREB to identify which course participants would be eligible for the survey. However, if a surveyor learned during an interview that a respondent did

not fulfill the criteria of inclusion for the survey, the enumerator discontinued the survey. Data on these respondents are not included in the analysis.

Figure III.1. Time line of implementation and data collection, by round



Source: Mathematica internal documentation.

Note: Date ranges are approximate.

The universe of participants who completed courses between May 2009 and March 2012 comprised 11,310 participants. Table III.2 shows, for each of the eight survey rounds, the period in which participants completed their first course, the period in which data collection occurred, the number of participants who completed a course in the corresponding time period, and the target number of completed interviews for each survey round. We divided this table into two panels, corresponding to the survey rounds analyzed in an interim report published in June 2013 (Campuzano et al. 2013; hereafter the Interim Report): rounds 1–4; and the survey rounds analyzed in this final report, rounds 5–8. In the Interim Report, we studied participants who had completed their first course from May 2009 to December of 2010. To ensure that survey respondents were to some degree representative of the entire population of participants completing courses in this period, CIDE’s data collection plan set the target number of completed interviews at 2,204. In this report, we study participants who completed their first course from January 2011 to March 2012. Similarly, the target number of completed interviews was set at 1,144 to ensure a representative sample for this period.

Table III.2. Course completion, data collection dates, number of participants who completed a course, and target number of completed interviews

Survey round	Date of course completion	Data collection period	Number of participants who completed courses	Target number of completed interviews
1	May 2009 to March 2010	February 2011 to October 2011	2,294	687
2	April 2010 to June 2010	July 2011 to September 2011	1,046	522
3	July 2010 to September 2010	September 2011 to December 2011	845	500
4	October 2010 to December 2010	January 2012 to February 2012	1,273	495
Subtotal (1–4)			5,458	2,204
5	January 2011 to March 2011	March 2012 to April 2012	1,241	325
6	April 2011 to June 2011	May 2012 to June 2012	1,116	212
7	July 2011 to December 2011	February 2013	2,045	327
8	January 2012 to March 2012	May 2013 to June 2013	1,450	280
Subtotal (5–8)			5,852	1,144
Total			11,310	3,348

Source: Personal correspondence with DIGESTYC and Encuesta de Educación no Formal Ronda 8, Entregable 5.2. Informe Mensual Correspondiente al Acuerdo MCC-DIGESTYC del 1 al 31 de mayo de 2013.

After identifying the course participants eligible to participate in the survey, a subset were randomly selected to be surveyed. In the final two rounds, this selection was stratified by course to ensure that the sample surveyed reflected the same distribution of courses as in the overall group of participants. Interviewers attempting to reach the target number of completed surveys were required to contact various numbers of participants for interviews, depending on the round. In the first four rounds of data collection, tracking participants represented a major challenge because participant contact information was out of date; the overall response rate for these rounds was 56 percent. After FOMILENIO made improvements to its process for gathering contact information, interviewers had more complete and reliable information for rounds 5–8. Data collectors visited participants selected for the survey at the place of residence they had listed on their training applications. If participants were not at home, interviewers were instructed to return for a maximum of three visits, each at a different time of day. Using this strategy and possessing more reliable contact information, they successfully completed 1,160 surveys for rounds 5–8 (response rate of 85 percent). Table III.3 presents information on the number of surveys attempted and completed, as well as the response rate by round, for rounds 5–8. For all rounds, data were collected from 3,353 participants.

The sample surveyed represents individuals who had *completed* their *first* non-formal course one year before and had not yet enrolled in an additional course at the time of the survey. The sample does not necessarily represent all individuals who enrolled in the courses or the overall population with a demand for non-formal training. Also, it does not necessarily represent those individuals who completed multiple courses. It is our understanding that the original design of the

intervention envisioned some participants taking several course in one area; for example, food preparation or construction. However, the sample surveyed excluded participants who took more than one course. As a result, we were not able to assess pre-post changes for participants who took several courses. Furthermore, for rounds 1-4, the response rate was only 54 percent and we have no information on non-respondents. As such, we cannot determine the extent to which non-respondents differed from respondents in general but it would be especially important for these rounds given the low response rates.

Table III.3. Survey sample sizes and response rates, by round

Survey round	Number of interviews attempted	Number of completed surveys	Response rate (%)
1	1,233	668	54
2	981	537	55
3	799	449	56
4	881	539	61
Subtotal (1–4)	3,894	2,193	56
5	362	312	86
6	236	220	93
7	410	337	82
8	360	291	81
Subtotal (5–8)	1,368	1,160	85
Total	5,262	3,353	64

Sources: CIDE and DIGESTYC reports and survey data.

2. Instrument modifications

It is important to note that the non-formal skills survey instrument changed substantially twice. First, the instrument used for round 1 differs from that used for rounds 2–6 because in round 1 the survey did not allow us to identify different types of employment, such as self-employment or salaried employment, and did not include questions for secondary and other income. For this reason, most of the analysis included the Interim Report and this report has excluded round 1. Second, after we conducted the analysis for the Interim Report, we decided to modify the instrument for rounds 7 and 8. As we explained in the Interim Report, an important limitation of the survey instrument used in rounds 2–6 was that questions about employment and income before training differed from the post-training questions. Thus, part of the changes pre-post we found in the Interim Report could be related to the different questions, not to real changes in key employment outcomes.

Given that the original goal of the survey was to collect monitoring data, not data for pre-post changes, questions for pre-intervention did not require the same level of detail as post-training questions; also, there was a concern that the participants would not recall such detail about a past time period. However, because this study's main interest is to generate unbiased estimates of pre-post changes on employment and income, the instrument for rounds 7 and 8 was modified so that the questions asked for pre-intervention employment and income would be the same as those used for post-intervention. Specific changes to the instrument are discussed in detail in Appendix Table A.1. This modification of the instrument allowed us to avoid the issue of part of the changes in employment and income from pre to post being due to different questions. The tradeoff is that the

pre-training values could suffer from measurement error due to participants not recalling the past reliably.

D. Characteristics of program participants

In this section, we summarize the characteristics of the program participants (research question 1). In particular, here we discuss the characteristics of the sample interviewed in the last four survey rounds, which is the focus of this report (the Interim Report focuses on the first four rounds). The sample consists of 1,160 individuals who completed their first non-formal skills training course between January 2011 and March 2012, and responded to the non-formal skills survey in rounds 5–8 (Table III.3). Table III.4 reports the characteristics of the sample. Individuals in this sample were an average 30.2 years old, 67 percent of them were women, and 34 percent (or approximately half the women) were unemployed women ages 17–35 at baseline. Eleven percent (or approximately one-third of the men) were unemployed men ages 17–35 at baseline. The sample is predominantly rural; 30 percent of respondents were living in an urban area at the time of the survey. Survey respondents had 2.9 years of work experience at baseline and 8.1 years of education at the time of the survey. Characteristics for all rounds are presented in Appendix Table A.2.

Table III.4. Characteristics of survey respondents (percentage unless noted)

Characteristics	Mean	Standard Deviation
Pre-training characteristics		
Age (years)	30.2	11.1
Female	67	47
Work experience (years)	2.9	6.4
Unemployed female ages 17–35	34	47
Unemployed male ages 17–35	11	31
Post-training characteristics		
Urban	30	46
Has children	56	50
Economic dependents (number)	1.4	1.7
Taken more than one course	11	31
Years of education (years)	8.1	3.7
Currently studying	9	28
PILAS participants	13	34
Female ages 17–24 with at least 9th grade education	15	36
Male ages 17–24 with at least 9th grade education	13	34
Female with at least one dependent	36	48

Source: Non-formal training survey, 2011–2012 (rounds 5–8).

Note: Sample size is 1,160 for all variables.

IV. IMPLEMENTATION SUMMARY

In this chapter, we summarize implementation of the Sub-Activity (research question 2), including a discussion of implementation challenges and facilitators. The qualitative information in this chapter was gleaned from a review of programmatic documents and reports, as well as in-person interviews with CIDE staff, FOMILENIO representatives, and PILAS contractors during visits to El Salvador from 2012 to 2014.

A. Initial planning

The Sub-Activity was modeled on HÁBIL, a program implemented by INSAFORP and still in operation today. Founded in 1996, HÁBIL provides work rehabilitation and training services throughout El Salvador (in several subject areas) with a focus on skills demanded by program participants, particularly women. The training courses offered through the Sub-Activity were expected to expand the availability of the type of training courses HÁBIL had made available, with a special focus on providing training in areas with potential for labor market insertion. The Sub-Activity's trainings differed from the HÁBIL courses in their focus on providing participants with training on skills needed for self-employment, given that most members of the target population—especially women—had more potential for self-employment relative to formal employment. CIDE developed the training courses and INSAFORP implemented them.

During 2008, CIDE conducted a needs assessment of the Northern Zone and developed an implementation plan for the Sub-Activity (CIDE 2008). The plan defined the target population as female heads of household; unemployed young women and men (ages 17 to 35), regardless of educational level; young women and men ages 17 to 24 who had completed at least 9th grade; and women and men with disabilities. According to stakeholders, some degree of program flexibility was required to accommodate the typical constraints that these vulnerable populations faced. To this end, FOMILENIO hired 12 contractors who offered the Sub-Activity on a demand-only basis, with classes scheduled according to participant availability. Contractors determined the location of the classes in coordination with participants; providing a venue for the courses was the community's counterpart contribution. Courses ranged from 180 to 400 hours in duration, but the length of the course (in calendar months) depended upon participants' availability. Implementing contractors were responsible for transporting all relevant course materials to assigned course locations. For example, contractors for cooking courses had to make stoves or ovens available at the locales at which the courses were taught.

The implementation plan originally developed by CIDE defined the three types of services the contractors should provide: (1) outreach and orientation services, during which the contractors were responsible for contacting potential participants, informing them about the Sub-Activity, and providing them with an orientation on courses suitable to their interests and capabilities; (2) training services, during which the contractor would deliver the course's training activities; and (3) orientation and advice for labor market insertion, during which the contractors would provide job placement services or advice to course graduates regarding viable options for self-employment. However, due to lack of implementer experience, only training services were implemented.

CIDE staff initially identified eight economic areas with potential for contracted employment or self-employment: (1) agriculture, (2) construction, (3) industrial services, (4) restaurants, (5) hotels and tourism, (6) commerce and administration, (7) manufacturing, and (8) social planning and outreach. Next, CIDE staff developed a list of approximately 80 existing and potential courses in these areas. Forty-five courses were identified as high priority due to their potential synergies with other projects implemented by FOMILENIO. For example, courses related to highway construction were prioritized due to the construction of a longitudinal highway in the Northern Zone. In addition, courses related to agriculture initially were identified as high priority because skills in this area would be relevant to the Productive Development Project.¹ To provide training in high-priority areas that did not yet have existing courses, CIDE designed four new courses for the Sub-Activity: (1) Salvadoran Food Preparation, (2) Dairy Product Transformation, (3) Management of Handicraft Microenterprises, and (4) Community Organizing. CIDE developed these courses using a competency-based educational approach, which focused on mastery of specific knowledge and skills. According to administrative records, at least 26 of the 45 courses identified as high priority were offered at least once during the implementation period. Only one of the four new courses designed by CIDE, Community Organizing, was actually provided.

B. Sub-Activity general rollout

The Non-Formal Skills Development Sub-Activity began activities in May 2009 and ended in June 2012. It started with a one-year pilot phase, in which INSAFORP recommended and executed a series of courses based on its assessment of feasibility and potential demand. Starting in November 2009, contracted implementers rolled out the full Sub-Activity based on CIDE's recommendations for high-priority courses. The activity began with an intense outreach campaign that included visits to municipal offices in the 94 municipalities of the Northern Zone. During these visits, implementers explained the Sub-Activity and identified potential participants. At the Sub-Activity's outset, mayors and potential participants were unfamiliar with the training program, and implementers reported some delays in securing initial stakeholder commitment. As it became better known in the Northern Zone, however, demand for courses gradually increased.

Implementation challenges. During the pilot phase, contracting firms that delivered previously established INSAFORP courses did not face substantial implementation challenges. During the general implementation phase, however, implementers encountered a range of challenges. First, FOMILENIO had difficulty in finding suitable firms to administer new training courses. Some high-priority courses were never offered because qualified providers could not be identified. Second, contracting requirements limited the hiring of suitable contractors. During the first year of full implementation, FOMILENIO required offers from three potential service providers to select the winning bid. This prevented the contracting of courses in areas in which there were fewer than three bids. Third, neither INSAFORP nor the implementers had worked extensively in the Northern Zone prior to the Sub-Activity's implementation. Service providers had to identify sites for each course and transport all of the necessary equipment to these sites. In many cases, road conditions and transportation constraints prevented providers from offering classes in areas with potentially high demand. Fourth, the contracted firms did not have the

¹ Funded by MCC and implemented by FOMILENIO from 2008 to 2012, the main objective of the Productive Development Project was to assist in the development of profitable and sustainable business ventures for poor individuals in El Salvador's Northern Zone.

capacity and experience to provide advice regarding labor market insertion and self-employment, as envisioned under the original design. Due in part to this lack of capacity among the contracted firms, FOMILENIO created PILAS in 2011. INSAFORP mentioned that they did not participate in the design phase of the Sub-Activity and believed that their experience would have helped address some of these challenges. These four implementation challenges are highlighted in Table IV.1.

Implementation facilitators. According to interviewed stakeholders, several factors mitigated the implementation challenges mentioned above. First, CIDE and FOMILENIO closely supervised courses and provided support in course design and training as needed. Stakeholders noted that this supervision and support helped to improve the quality of courses as the implementation period progressed. Second, the implementing firms showed interest and willingness to adapt to the requirements of the program. Third, as the program became known, participating trainees and community liaisons (including municipal authorities and religious leaders) exhibited a strong interest in the courses and assisted in locating venues, identifying participants, and making logistical arrangements. Fourth, implementers found that distributing free starter kits—for example, baking course participants received baking sheets, spoons, and molds—at the outset of a course enhanced participant interest and commitment, in turn generating higher completion rates. See Table IV.1 for a summary of implementation challenges and facilitators during the Sub-Activity general rollout phase.

Table IV.1. Challenges and facilitators during the general Sub-Activity rollout

Challenges
Lack of suitable firms to deliver new training courses
Contracting requirements limited the hiring of qualified contractors
Lack of implementer experience in the Northern Zone
Lack of implementer capacity to provide advice regarding labor market insertion and self-employment
Facilitators
Close supervision by CIDE and FOMILENIO
Strong interest and commitment from implementing firms
As the program became known, interest and commitment from participants and local authorities increased
Starter kits distributed at the outset of courses

Source: In-person interviews with CIDE staff, FOMILENIO staff, and PILAS implementers from 2012 to 2014.

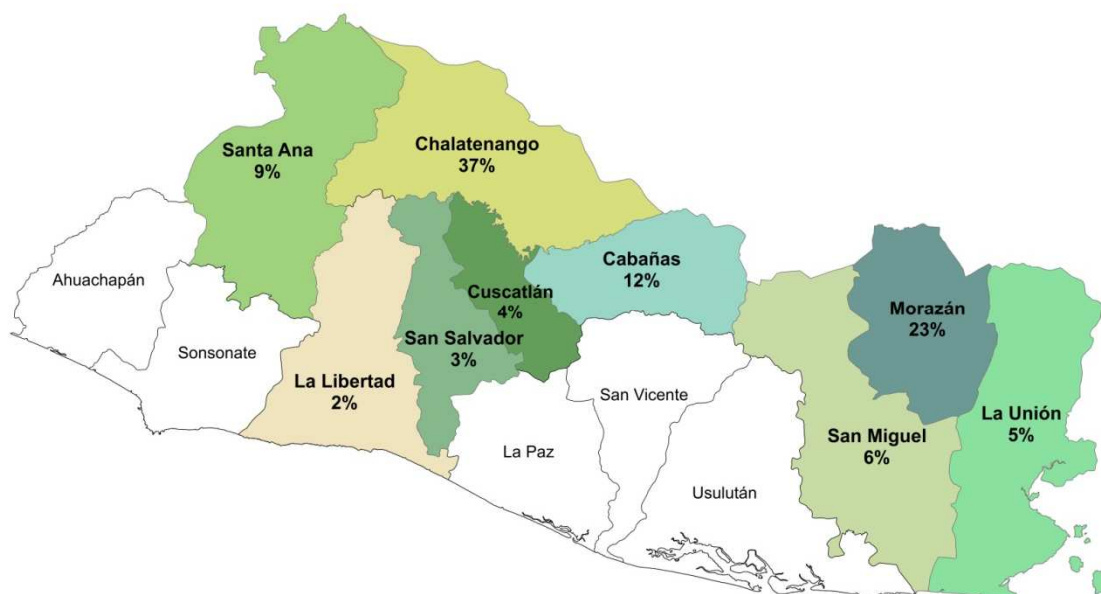
The Sub-Activity met its modified enrollment targets. As of May 2012, 11,876 unique individuals had begun non-formal skills courses since early 2009, surpassing the revised compact target of 8,400 participants (revised downward from an initial target of 13,000 participants).² Furthermore, as shown in Table IV.2, 11,310 of the 11,876 participants who started courses completed them (a 95 percent completion rate). As of May 2012, contractors had completed 852 courses under the Sub-Activity in the nine departments and 94 municipalities of the Northern Zone. These courses were concentrated in Chalatenango and Morazán, followed by Cabañas and Santa Ana (Figure IV.1).

² Some participants took more than one course. According to SIREB data, 12 percent of course participants took more than one course from 2009 to 2012.

Table IV.2. Number of non-formal training participants and completion rates, by date of course completion

Survey round	Date of course completion	Number of individuals who began courses	Number of individuals who completed courses	Completion rate (%)
1	May 2009 to March 2010	2,309	2,294	99
2	April 2010 to June 2010	1,103	1,046	95
3	July 2010 to September 2010	911	845	93
4	October 2010 to December 2010	1,351	1,273	94
5	January 2011 to March 2011	1,355	1,241	92
6	April 2011 to June 2011	1,150	1,116	97
7	July 2011 to December 2011	2,157	2,045	95
8	January 2012 to March 2012	1,540	1,450	94
Total		11,876	11,310	95

Source: SIREB, May 2012.

Figure IV.1. Geographic distribution of non-formal skills courses, by department, all data collection rounds

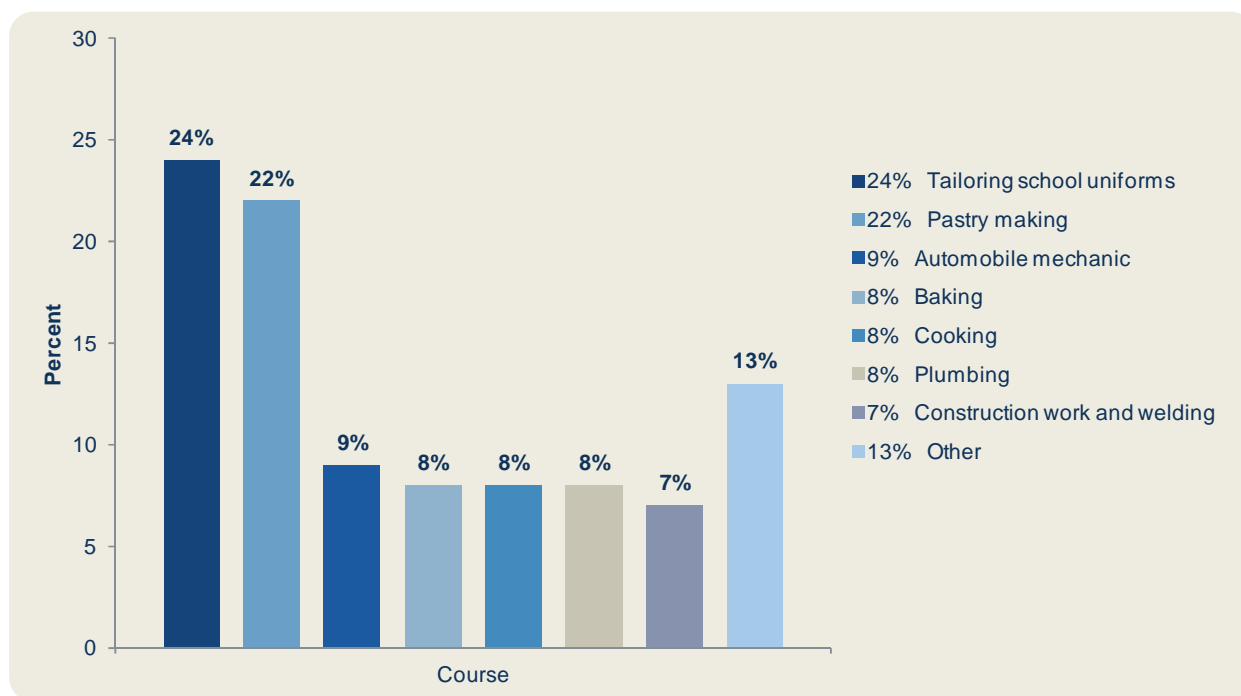
Source: SIREB, May 2012.

Notes: The sample consists of 13,073 participants who had started a course as of May 2012. This includes all course participants, not just survey respondents. Percentages do not sum to 100 due to rounding.

Using the SIREB, FOMILENIO's database of all course participants in the Sub-Activity, we found that the most popular courses—as defined by the number of times the course was offered

and the number of participants—were school uniform tailoring, baking, cooking, residential electrical installations, pastry making, and bricklaying. Looking at the survey data, we found that in the first four survey rounds, the five courses with the largest number of participants were (1) baking, (2) cooking, (3) residential electrical installations, (4) bricklaying, and (5) pastry making. In the last four survey rounds, school uniform tailoring, cooking, baking, pastry making, and automobile mechanics were the most popular courses. Results from the last four rounds of survey data can be seen in Figure IV.2. It is worth noting that cooking courses remained popular in all survey rounds, but tailoring and automobile mechanics increased in popularity in the last two survey rounds. As we discussed before, although the courses were based on demand, the goal was to provide courses in areas with potential for contracted employment or self-employment. When the Ministry of Education implemented the policy of providing free uniforms to students and contracted with small local enterprises to provide them, the Sub-Activity began offering tailoring courses to take advantage of the new demand.

Figure IV.2. Distribution of courses completed, by subject, rounds 5–8



Source: Non-Formal Training Survey, 2011–2012 (rounds 5–8).

Note: The sample size was 1,160 participants.

Most courses had an uneven gender distribution. Table IV.3 shows the distribution of men and women in the five most popular courses for the full population of course participants (not only survey respondents). Women represented more than 90 percent of participants in the tailoring and cooking-related courses (baking, cooking, and pastry making), whereas men represented more than 95 percent of participants in the electrician course.

Table IV.3. Participation in the five most popular non-formal training courses, by gender (all rounds)

Course topic	Number of courses offered	Number of participants	Women (%)	Men (%)
Tailoring school uniforms	110	1,988	93	7
Baking	98	1,614	91	9
Cooking	82	1,391	92	8
Electrician	66	1,202	3	97
Pastry making	60	1,202	94	6

Source: SIREB, May 2012.

Note: Sample size was 13,073 participants who started a course as of May 2012. Some participants took more than one course.

C. PILAS implementation

PILAS began its implementation in July of 2011 and operated for approximately one year. The original time line was 18 months of implementation, but the implementation time line was reduced to 12 months due to delays in designing and formalizing the program. FOMILENIO hired three contractors to implement PILAS; two of these contractors worked with participants of the Non-Formal Skills Development Sub-Activity. All the contracts between the implementers and FOMILENIO were based on payment by results—meaning that implementers were paid only after participants started a successful business or secured salaried employment. The standards for payment were set in accordance with original compact targets. Participants with a goal of temporary employment needed to hold a job for at least 30 days in order to be considered a successful employment case. Participants with a goal of permanent employment needed to be in the job for at least 60 days to be considered a successful employment case. Participants with a goal of self-employment needed to run an income-generating business in order to be considered a successful self-employment case. CIDE was responsible for confirming successful cases and completing the payment to the implementers.

To identify individuals who had participated in FOMILENIO programs and offer them PILAS services, implementers contacted mayors' offices and organized meetings with participants in the non-formal skills courses. During the meetings, implementers explained the program and enrolled eligible and interested participants. PILAS had three stages, which together consisted of job search and placement assistance for some, and business development for others.

First was a selection stage, in which implementers worked with participants to assess their potential to become either an employee of an organization (salaried employment) or to start or develop a business (self-employment). Stakeholders reported that the implementation of this stage was challenging. Initially, implementers conducted a series of assessments to determine participants' interests and capabilities. But they realized that they needed more thorough psychosocial assessments to determine if candidates were capable of holding salaried employment, as well as a test of entrepreneurship in order to identify the individuals with strong potential for self-employment. Developing these tests took longer than implementers had expected. In addition, conducting the assessments was time-consuming because of the large portion of illiterate participants who needed personalized attention to complete the tests. This stage typically took

approximately one month, but longer in some cases. Only about half of the initial enrollees finished this first stage and continued to the next two stages.

The second and third stages differed, depending upon the group in which participants were placed. For participants in the salaried employment group, implementers provided assistance in preparing participants' employment paperwork and helping them start their job search. This assistance was provided by a technician who visited the municipalities, providing each location with an average of 32 hours of services (in general, four visits of 8 hours each). One implementer noted that due to the difficulty of finding salaried employment for older people, these services were provided mostly to young participants (younger than 36 years of age).

In the third phase, implementers attempted to place participants in the labor force and receive payment for the placement. This usually involved several visits to businesses and employers in the region, as well as in-person meetings to pair PILAS participants with employers. One implementer reported that approximately 35 percent of all people that were trained in stage 2 found successful employment. Some notable barriers to employment included (1) an inability to pass employers' entry exams, particularly exams that tested math skills; (2) low wages offered by potential employers; (3) a lack of available transportation to report for work on time; and (4) a lack of motivation to commit to permanent working arrangements.

For participants in the self-employment group, implementers provided initial training on business plan development during the second stage, and technical assistance to implement the main objectives of each particular business plan in the third stage. The initial training lasted 96 hours per participant and, in general, was provided over the course of two months. However, one implementer mentioned that in many cases, especially in those cases in which participants already had an economic activity, scheduling the visits was challenging. Technical assistance (or the third stage of assistance) lasted two months and, in general, consisted of one technical assistance visit per month. On average, participants progressed through both stages in four or five months. One implementer noted that due to domestic responsibilities that made women less likely to hold a full-time job, women were more likely to be placed in the self-employment group than in the salaried employment group.

Regarding payment to the implementers, a case was considered a successful self-employment if the participant had a running business at the end of the third stage and was conducting business according to their business plan. Due to the challenge of fulfilling these requirements, PILAS implementers were more likely to serve participants who already had a business than those starting without a business. The implementer noted that in communities that received remittances, the success rate of people that started without a business was higher than in other locations. This finding suggests the integral role of initial capital in starting a successful small business.

In addition, PILAS provided monetary incentives to self-employed individuals with strong potential for development. A lack of initial capital had been identified by FOMILENIO as a barrier for self-employment for the target population, which in general was composed of individuals who did not have credit histories and were not viable candidates for bank loans. Although the original compact design had envisioned that the Investment Support Activity of the compact's Productive

Development Project³ would provide small loans to these populations, the activity primarily served targeted agricultural value chains. As part of the PILAS program, some individuals and enterprises that showed strong potential for growth received monetary prizes of \$1,500 per person or \$4,000 per business. PILAS implementers submitted candidates for the prize and CIDE was in charge of selecting winning candidates. Those who received prizes would use them to establish or strengthen their small businesses.

PILAS implementation challenges. The implementation of PILAS presented several challenges for the implementers. First, PILAS was the implementers' first experience with a target population that possessed little formal education and scant financial resources. As a result, implementers did not estimate accurately the human and financial resources that would be required to make successful placements, and they struggled to profit from their involvement in the program. Second, stakeholders mentioned a disconnect between non-formal skills courses and PILAS, in that course trainers had no contact with PILAS implementers. As such, course trainers could not share relevant information with PILAS implementers—including their perspectives on which trainees had the strongest skills or best potential for employment, or which potential employers might be interested in hiring these individuals. Third, the original format of the business plans was too onerous, as it required a large volume of information and analysis. Midway through PILAS implementation, FOMILENIO and CIDE worked with the implementers to reduce the plans from an average of 100 pages to 30 pages, while still providing all necessary information. Fourth, many PILAS participants had limited formal education. This constrained their ability to complete business plans—particularly sections on projected income and costs. In many cases, PILAS implementers would train a family member to assist participants with these tasks. (See Table IV.4 for a summary of PILAS implementation challenges.)

PILAS implementation facilitators. Stakeholders noted several factors that facilitated PILAS implementation. First, although the firms hired for implementation had very little experience implementing projects similar to PILAS, they had a strong desire to learn and improve their performance. Second, the program's performance-based contracts introduced a strong focus on job placements, which motivated implementers to devote substantial time and resources to assisting their assigned participants. Third, FOMILENIO and CIDE showed flexibility throughout implementation by relaxing burdensome requirements and providing implementers with additional guidance and direction, as needed. For example, CIDE and FOMILENIO reduced the length of the business plan from a 100-page document to a 30-page document. (See Table IV.4 for a summary of PILAS implementation challenges and facilitators.)

³ When the compact was signed, some stakeholders believed that the Investment Support Activity would provide relatively small loans to micro and small enterprises in the agriculture, agro-industrial, handicrafts, tourism, and dairy sectors. However, when the activity was implemented, the program set \$50,000 as the minimum loan amount. This largely precluded micro entrepreneurs from accessing investment capital through this activity. Another activity of the Productive Development Project, the Financial Services Activity, was designed to facilitate smaller loans to micro entrepreneurs by guaranteeing loans made by banks and credit unions operating in the Northern Zone.

Table IV.4. PILAS implementation challenges and facilitators**Challenges**

Lack of implementer experience with target population
Disconnect between non-formal skills courses and PILAS
Original format of the business plans was too onerous
Participants' limited formal education constrained their ability to complete business plans

Facilitators

Contracted firms made efforts to improve their performance
Contracts were structured to incentivize firms to help participants find employment
Flexibility on the part of CIDE and FOMILENIO to modify plans and provide guidance

Source: In-person interviews conducted in 2012 with CIDE staff, FOMILENIO staff, and PILAS implementers.

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V. FINDINGS

In this chapter, we analyze how participants' labor market outcomes and income changed after completing the Sub-Activity's courses (research question 3). In the first section of this chapter, we briefly summarize the main findings of the Interim Report, which focused on the first four survey rounds; in the second section, we discuss in detail the findings of the final analysis, which focused on the last four survey rounds.

A. Interim analysis

The 2013 Interim Report estimated the potential effect of the Sub-Activity by comparing participants' labor market and economic outcomes before completing training courses to their outcomes approximately one year after completing them. Below, we summarize the primary findings of this analysis.

- Following their completion of non-formal skills training courses, participants' employment rates increased by 30 percentage points, with a 15 percentage point increase in self-employment and a 10 percentage point increase in salaried employment.
- Participants who took courses related to food preparation, such as cooking and baking, were more likely to be self-employed than obtain salaried employment following training. Participants who took courses in bricklaying and residential electrical installations experienced greater increases in salaried employment rates vis-à-vis self-employment rates. This pattern is likely due to the fact that food preparation can be done in the home—and thus lends itself to self-employment—whereas participants in construction-related courses may have been more likely to find salaried work on construction projects, such as the longitudinal highway.
- Participants experienced positive changes in principal income, secondary income, additional income, and total net annual income following training. Increases in primary income were particularly large among the newly employed, especially those who obtained salaried positions after training. In addition, cooking and electrical installation courses were associated with the largest income increases, followed by baking and bricklaying courses.
- We found statistically significant and positive changes in employment rates for men and women, with self-employment increasing more among women and salaried employment increasing more among men. This could be related to the fact that women were more likely to take food preparation courses, whereas men were more likely take construction-related courses. However, men and women experienced similar income increases following training.
- Changes in employment rates and labor income differed by level of education. Although we found positive and statistically significant changes in employment rates for all education levels, the least educated participants in the study sample experienced the least success in obtaining a job and increasing their income following training.
- PILAS participants reported gains in employment rates following training and were more likely to become self-employed than find salaried employment. This can be explained by the fact that a larger percentage of PILAS participants were advised to try self-employment than salaried employment. This in turn may be explained by the incentives to PILAS services providers. Their payment was contingent on participants remaining employed for 60 days after

the training. Service providers may have encouraged participants to seek out self-employment rather than salaried employment if they felt the former would be easier to certify.

- Similar to general findings for all participants in the Sub-Activity, PILAS participants experienced an increase in principal, secondary, additional, and total income following training.

B. Final analysis

In this section, we summarize results for survey rounds 5–8. We present all results separately for rounds 5 and 6 versus rounds 7 and 8 because, as explained previously, the survey instrument changed for the last two rounds. Before discussing the results, it is worth mentioning an important implication of this instrument modification.

In rounds 2 and 6, for the pre-training period, the survey asked if the respondent was working when he or she enrolled in the course. If the respondent said he or she was not working, the respondent was considered unemployed before training. However, for the post-training period, if the respondent said he or she was not working, the survey then asked about participation in various informal activities, such as engaging in agricultural activities, making and selling pupusas or other food, or selling lottery tickets. Respondents who indicated that they engaged in these informal activities *regularly* were considered employed after the training. We refer to these cases as “informally employed.” The issue is that respondents who were informally employed both before and after training were counted as unemployed pre-training and employed post-training in rounds 2-6. Thus, the estimated pre-post change in employment for this group was likely exaggerated (or upwardly biased). Furthermore, when people were identified as employed, the survey asked income questions not asked for the unemployed. Pre-training income for the informally employed was, therefore, not accurately reported in rounds 2-6. Furthermore, the survey used in rounds 7 and 8 asked for the same level of detail for additional annual income pre-training and post-training, whereas rounds 5 and 6 did not do so.

For all these reasons, we expect the estimates of pre-training outcomes of rounds 7 and 8 to be more accurate than estimates from previous rounds. Also important to note is that post-training survey questions were not modified in any round of data collection. As a result, post-training employment and income estimates are fully comparable across rounds.

1. Changes in employment and income

Participants’ employment rates increased one year after completing their first non-formal skills course, but these improvements were less pronounced in the last two survey rounds. Employment outcomes are presented in Table V.1 separately for rounds 5 and 6 versus 7 and 8. Appendix Table A.3 presents outcomes for rounds 2–8 separately and combined. In rounds 5 and 6, the employment rate among respondents grew by 32 percentage points from a baseline level of 37 percent—a statistically significant difference. In rounds 7 and 8, the percentage of respondents who were employed grew by a smaller but still statistically significant amount: 14 percentage points over the pre-training level of 46 percent.

Table V.1. Changes in employment

Outcome	Mean before training	Mean after training	Change	Sample size	p-value
Survey rounds 5 and 6					
Employed (%)	37	69	32	532	0.000
Self-employed (%)	20	35	14	532	0.000
Salaried employee (%)	9	22	13	532	0.000
Other employment (%)	8	13	4	532	0.001
Hours worked weekly (mean)	11.8	19.4	7.6	529	0.000
Average level of employment in past year (in FTEs) (%)	26	27	1	529	0.591
Survey rounds 7 and 8					
Employed (%)	46	60	14	628	0.000
Self-employed (%)	23	28	5	628	0.002
Salaried employee (%)	15	25	10	628	0.000
Other employment (%)	8	7	-2	628	0.197
Hours worked weekly (mean)	15.1	19.8	4.7	628	0.000
Average level of employment in past year (in FTEs) (%)	23	27	4	626	0.041

Source: Non-formal training survey, 2011–2012.

Note: Differences may not align with pre and post results due to rounding.

The p-value on a chi-squared test of the difference between the distribution of employment outcomes before and after the Sub-Activity is 0.000 for participants in rounds 5 and 6 and 0.000 for participants in rounds 7 and 8.

FTE = full-time equivalent job.

The revision to the survey after round 6 may have contributed to these differential results between rounds, but it is unlikely that the entire reduction between rounds can be attributed to this change. This is because the instrument's modifications affected only questions about pre-training, and left questions about post-training unchanged. Because questions on post-training outcomes were uniform throughout all survey rounds, we can conjecture that course participants in 2011 and 2012 (rounds 7 and 8) may have been less motivated or skilled than participants in earlier rounds, or may have faced labor markets that were already saturated with graduates of previous non-formal skills courses. Some combination of these factors, as well as other socioeconomic factors, may explain the lower post-training employment rate of participants in rounds 7 and 8 (60 percent) versus rounds 5 and 6 (69 percent).

Increases in employment were driven by self-employment and salaried employment, but growth in self-employment was lower in rounds 7 and 8 than in rounds 5 and 6. In rounds 5 and 6, the rise in post-training employment was driven by a 14 percentage point increase in self-employment and a 13 percentage point increase in salaried employment. In rounds 7 and 8, self-employment increased by 5 percentage points and salaried employment by 10 percentage points.

The average number of hours worked per week increased significantly one year after the training in all rounds, but participants still were working at half-time, on average. In rounds 5 and 6, the average number of hours worked per week by all respondents, including unemployed respondents, increased by 7.6 hours over a pre-training level of 11.8 hours. In rounds 7 and 8, hours worked increased by 4.7 hours from 15.1 hours. Furthermore, average respondents in all rounds worked far less than full time both before and after the training. Again, the

modification to the survey used in rounds 7 and 8, which explicitly asked about informal employment before the training, may have contributed to the smaller difference observed in rounds 7 and 8.

Participants' average FTEs increased in the last two rounds, but the change was small.

We combined the hours worked per week with the number of months the respondent held their job to estimate each respondent's average annual full-time equivalent (FTE) before and after training. FTE is a calculation of an individual's annual labor investment, with a benchmark of 1.0 FTE equal to 2,000 labor hours. After the training, respondents in rounds 5 and 6 increased their FTEs from 0.26 to 0.27, but this difference was not statistically significant. However, respondents in rounds 7 and 8 increased their FTEs from 0.23 to 0.27, which was statistically significant at the 5 percent level.⁴

Income increased for course participants in rounds 5 and 6, but we did not find statistically significant income changes in the last two rounds.

Changes in personal income are presented in Table V.2 separately for rounds 5–6 and 7–8. Appendix Table A.4 presents outcomes for principal income, secondary income, and additional income for each of rounds 5–8. In rounds 5 and 6, total net annual income increased statistically significantly, by \$325, over a pre-training income of \$586. This means that the daily income of the average participant increased from \$1.60 to \$2.40. In rounds 7 and 8, the increase was less dramatic and not statistically significant, with incomes rising by \$93 over a pre-training income of \$917. However, it should be noted that round 7 participants experienced a statistically significant increase in total income of \$254, whereas round 8 participants experienced no statistically significant change in total income (see Table A.4). As noted above, changes in the instrument used in rounds 7 and 8 may partly explain the lower growth in income observed in these last two rounds. Informally employed people were asked questions about principal and secondary income in rounds 7 and 8, whereas they were not asked about income in rounds 5 and 6.

⁴ Employment histories are complex—respondents may have worked any number of overlapping jobs. This measure of FTE relies on information on the respondents' most recent job at the time they enrolled in the training course and their most recent job at the time of the survey. As a result, FTEs may be underestimated for respondents who changed jobs frequently. Questions to gather additional information about respondents' employment histories were not included in the survey to keep it brief and minimize non-response.

Table V.2. Changes in annual personal income (in USD)

Outcome	Mean before training	Mean after training	Change	Sample size ^a	p-value
Survey rounds 5 and 6					
Net annual income from principal economic activity	\$403	\$551	\$148	494	0.001
Net annual income from secondary economic activity	\$37	\$97	\$60	519	0.000
Additional annual income	\$158	\$271	\$113	526	0.000
Total net annual income	\$586	\$911	\$325	479	0.000
Survey rounds 7 and 8					
Net annual income from principal economic activity	\$513	\$566	\$53	624	0.370
Net annual income from secondary economic activity	\$87	\$94	\$7	626	0.712
Additional annual income	\$317	\$358	\$41	628	0.027
Total net annual income	\$917	\$1,009	\$93	622	0.143

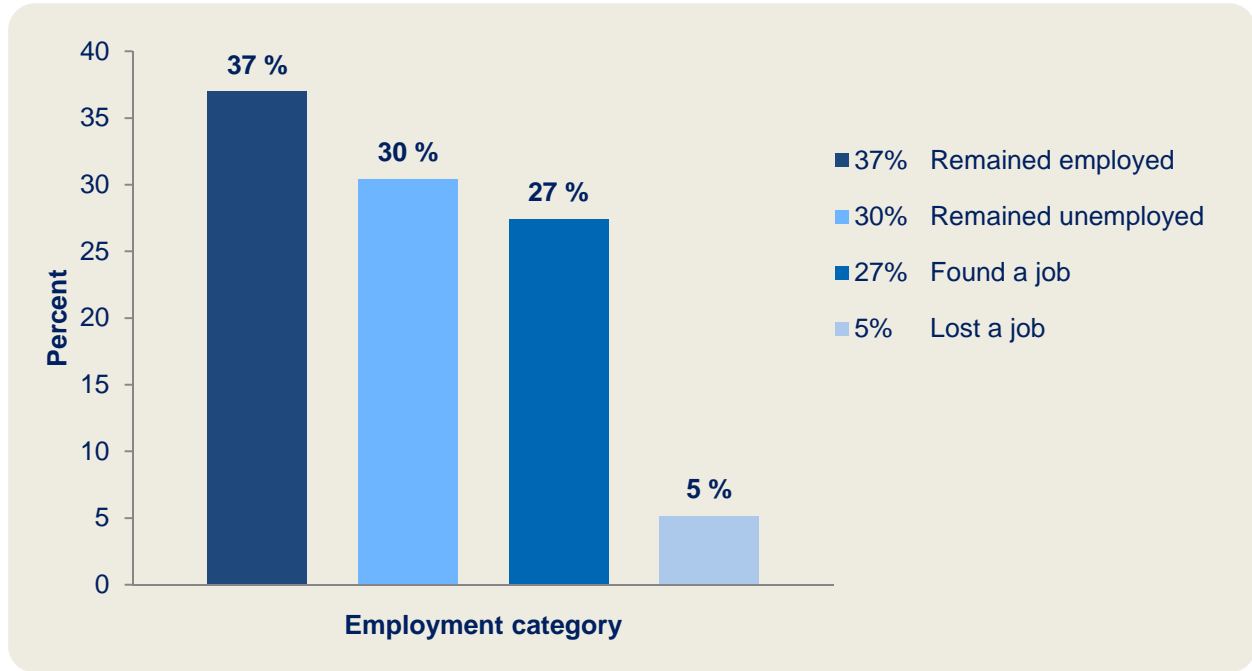
Source: Non-formal training survey, 2011–2012.

^aThe different sample sizes for each component of income are due to missing data. Total net income is not equal to the sum of principal, secondary, and additional income because of rounding and the difference in sample sizes.

2. Employment transitions and changes in income

To better understand which were the most common employment transitions from pre- to post-training periods, we constructed a variable that captured the possible job transitions from before the training to one year after training: remained employed (employed both before training and one year after training), remained unemployed (unemployed both before training and one year after training), found a job (unemployed before training and employed one year after training), and lost a job (employed before training and unemployed one year after training). Figure V.1 shows how participants transitioned into and out of employment before and one year after the training for rounds 5–8. Of the 42 percent of participants who initially were employed, 37 percent remained employed, whereas only 5 percent lost their jobs. Of the 58 percent who initially were unemployed, 27 percent (nearly half) found a job, whereas the other half (30 percent) remained unemployed. Next, we discuss how these transitions affected income as well as differences in transitions and income between rounds 5 and 6, and 7 and 8. We then examine the most common occupations among those who found jobs.

Figure V.1. Changes in employment status following training, rounds 5–8



Source: Non-formal training survey, 2011–2012 (rounds 5–8).
 Sample Size: 1,160 participants.

Of the unemployed before training, 55 percent found a job in rounds 5 and 6, but only 40 percent did so in rounds 7 and 8. Furthermore, incomes increased most for those who found salaried jobs one year after completing the course. As indicated in Table V.3, people who initially were unemployed and became employed had statistically significant gains in income in all rounds for all categories of post-training employment. Of those initially unemployed, 55 percent found a job in rounds 5 and 6 (183 out of 334), whereas 60 percent of the initially unemployed remained unemployed in rounds 7 and 8 (202 out of 337). Those who found salaried employment experienced the largest income gains in all four rounds. In contrast, we found no statistically significant change in income for people who were employed before training and remained employed after training. Not surprisingly, people who lost jobs after training experienced a statistically significant decrease in income, but the loss in income was larger in rounds 7 and 8 (\$886) than in rounds 5 and 6 (\$343).

Table V.3. Changes in annual personal income, by employment transition^a (in USD)

Post-training Employment	Mean before training	Mean after training	Change	p-value	Sample size in this transition	Sample size with income data
Survey rounds 5 and 6						
For initially unemployed (n = 334)						
Remained unemployed	\$0	\$0	\$0	NA	151	151
Got a job	\$0	\$628	\$628	0.000	183	178
Self-employed	\$0	\$659	\$659	0.000	82	77
Salaried	\$0	\$743	\$743	0.000	72	72
Otherwise employed	\$0	\$261	\$261	0.003	29	29
For initially employed (n = 198)						
Lost a job	\$343	\$0	-\$343	0.037	12	11
Remained employed	\$1,382	\$1,360	-\$22	0.854	186	145
Self-employed	\$1,830	\$1,932	\$102	0.624	102	75
Salaried	\$1,527	\$1,286	-\$241	0.227	46	35
Otherwise employed	\$280	\$210	-\$70	0.473	38	35
Survey rounds 7 and 8^b						
For initially unemployed (n = 337)						
Remained unemployed	\$0	\$0	\$0	NA	202	202
Got a job	\$0	\$766	\$766	0.000	135	134
Self-employed	\$0	\$804	\$804	0.000	48	47
Salaried	\$0	\$841	\$841	0.000	71	71
Otherwise employed	\$0	\$316	\$316	0.003	16	16
For initially employed (n = 291)						
Lost a job	\$886	\$0	-\$886	0.000	48	48
Remained employed	\$1,383	\$1,271	-\$112	0.444	243	238
Self-employed	\$1,720	\$1,494	-\$226	0.406	127	125
Salaried	\$1,168	\$1,228	\$60	0.443	89	87
Otherwise employed	\$487	\$346	-\$141	0.410	27	26

Source: Non-formal skills survey, 2011–2012 (rounds 5–8).

^aExcludes other income.

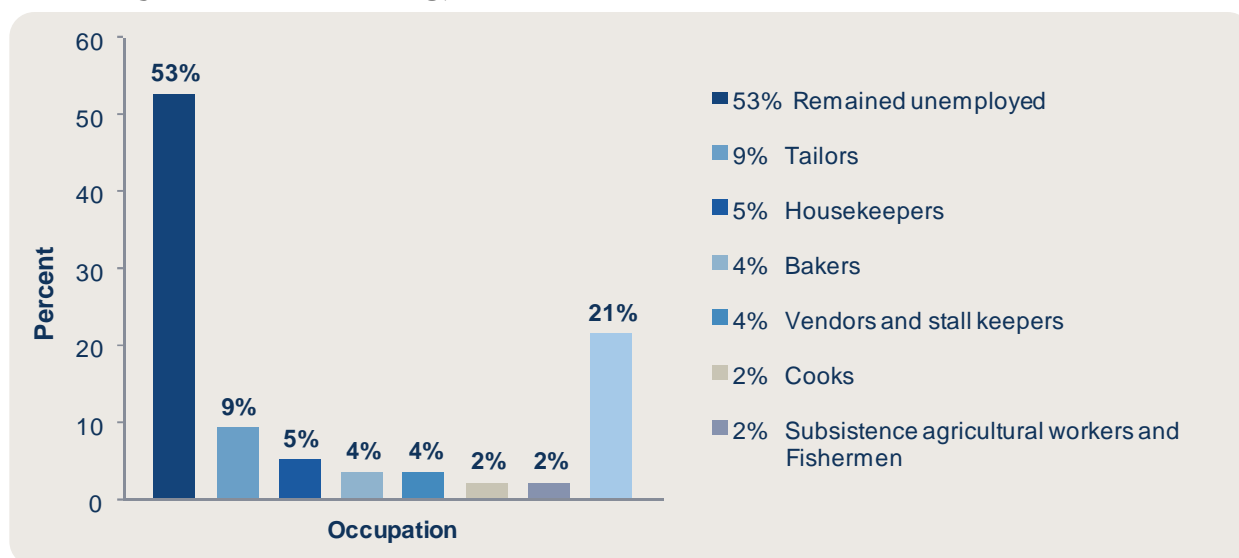
^bSelf-employed income was calculated differently between the two survey rounds due to differences in the survey. For rounds 5–6, self-employed income was calculated by subtracting reported monthly costs from reported gross income and multiplied by number of months earned. For rounds 7–8, the survey requested net income, which was multiplied by number of months earned.

We also analyzed the most common occupations among those who were unemployed before training and transitioned to employment one year after training. We completed this analysis using the sample of participants surveyed in rounds 5–8 who reported being unemployed before training. Figure V.2 summarizes these findings.

In rounds 5–8, among those unemployed before training who found a job one year after training, the most common occupations were tailor, housekeeper, baker, and vendor and stall keeper. Figure V.2 shows that, for rounds 5–8, of the 47 percent who did find employment one year after training, the most commonly held occupation was tailor (9 percent of the initially unemployed), suggesting that the popular courses on tailoring school uniforms were effective in

improving employment outcomes for some participants.⁵ Five percent were housekeepers, 4 percent bakers, 4 percent vendors and stall keepers, 2 percent cooks, 2 percent subsistence agricultural workers, and the remaining 21 percent had other occupations. It is worth mentioning that in the Interim Report we found similar results for most occupations. One important difference is the occupation of tailor, which was not a common occupation in rounds 1–4 and became the most common in rounds 5–8. Offering courses in tailoring school uniforms is an example of responding to likely changes in labor demand. As mentioned previously, in 2010, the government of El Salvador began a program to offer free school uniforms and bought uniforms from local microenterprises, generally run by women.

Figure V.2. Most common occupations after training of participants unemployed before training, rounds 5–8



Source: Non-formal training survey, 2011–2012 (rounds 5–8).

Sample Size: 664 participants.

3. Changes in employment and income by gender

We also conducted subgroup analysis on employment and income changes by gender for rounds 5–8. Impacts by gender are of special interest for FOMILENIO, given that one of the target populations for the training courses was women. This decision was based on the labor needs assessment conducted by CIDE, which identified non-formal skills training for women as a way of increasing their income. The findings are shown in detail in appendix Figures A.1 and A.2, and are discussed below.

We found statistically significant increases in employment rates for both men and women in all rounds. These changes seem to be driven by higher self-employment and salaried employment for women, but only by higher salaried employment for men. Furthermore, the employment gap narrowed after the course. The average increase in

⁵ As expected, a majority (77%) of initially unemployed people who found employment in school uniform tailoring had taken a tailoring course.

employment was larger in rounds 5 and 6 for women as well as men. As shown in Figure A.1, employment increased by 29 percentage points in rounds 5 and 6 for men, but by only 13 percentage points in rounds 7 and 8. For women, employment increased by 34 percentage points in rounds 5 and 6, and by 15 percentage points in rounds 7 and 8. Although men were more likely to be employed than women one year after training, the employment gap narrowed by 4 percentage points in rounds 5 and 6, and by 2 percentage points in rounds 7 and 8. Interestingly, for women, the increase in employment was driven by significant increases in both self-employment (19 percentage points in rounds 5 and 6, and 6 percentage points in rounds 7 and 8) and salaried employment (10 percentage points in rounds 5 and 6, and 10 percentage points in rounds 7 and 8). For men, employment growth was driven by increases in salaried employment only (22 percentage points in rounds 5 and 6, and 15 percentage points in rounds 7 and 8). This result is consistent with our findings from the Interim Report pertaining to rounds 2–4 that self-employment increased for women, whereas salaried employment increased for men.

In rounds 5 and 6, we found that women’s total annual income increases were statistically significant but there were no significant changes in men’s income. In rounds 7 and 8, no significant income changes in total income were found for either gender group. As shown in Figure A.2, men began with higher levels of income than women, earning \$880 per year in rounds 5 and 6 and \$930 in rounds 7 and 8, compared to women’s pre-training income of \$478 and \$910 in those same rounds. However, the pre-training income gender gap in rounds 5 and 6 ($880 - 478 = 402$) is much larger than the income gender gap in rounds 7 and 8 ($930 - 910 = 20$). Both groups’ income increased after the training in all rounds, but only the gains of women in rounds 5 and 6 were large enough to be considered statistically significant; women’s total annual income increased by \$363 ($841 - 478 = 363$). Post-training, the income gender gap in rounds 5 and 6 is \$260, down from \$402 pre-training. In contrast, in rounds 7 and 8, post-training women’s total annual income of \$1,037 is higher than—but not statistically distinct from—men’s income of \$960, meaning there is essentially no gender gap post-training. It is likely that the increase in women’s pre-training income in rounds 7 and 8, as compared to rounds 5 and 6, is due in part to the additional questions used in these rounds that asked for income of informally employed people and collected more detailed additional income data.

4. Changes in employment and income by age

We also conducted subgroup analysis on employment and income changes by age groups. Impacts by age groups are of special interest, given that the training courses purposely targeted youth. For this analysis, we constructed two age groups—those under 36 years of age and those ages 36 or over—for rounds 5–8. We decided to use 36 as the cutoff age because the Sub-Activity targeted non-economically active young women and men (ages 17–35) regardless of educational level. These results are summarized in appendix Figures A.3 and A.4, and are discussed below.

Although employment increased significantly for younger and older participants alike, participants under age 36 saw larger gains in employment than the older participants in rounds 5–8. These gains are due to larger gains in salaried employment by the young. As can be seen in Figure A.3, employment rates for participants under age 36 increased by 36 percentage points in rounds 5 and 6, and by 16 percentage points in rounds 7 and 8. For participants ages 36 and over, employment increased by 23 percentage points in rounds 5 and 6, and by 11 percentage points in rounds 7 and 8. All increases in employment were statistically significant. Increments of

self-employment were similar for both age groups. For younger participants, self-employment increased by 15 and 6 percentage points in rounds 5 and 6, and 7 and 8, respectively. For older participants, self-employment increased by 15 and 4 percentage points in rounds 5 and 6, and 7 and 8, respectively (this increase in rounds 7 and 8 was not significant). In contrast, salaried employment for younger participants increased by 17 and 12 percentage points in rounds 5 and 6, and 7 and 8, respectively. There was no significant change in salaried employment for older participants in rounds 5 and 6 or rounds 7 and 8.

In rounds 5 and 6, total annual income increased significantly for younger and older participants, but younger participants had significant increments in all types of income, whereas older participants' principal income showed no significant change. No significant changes were found in rounds 7 and 8. As can be seen in Figure A.4, in rounds 5 and 6, income grew more for older participants in absolute terms (by \$480 for older participants compared to \$273 for younger participants), but grew more for younger participants in relative terms (income grew by 65 percent for younger participants, but by only 45 percent for older participants). Interestingly, principal income had a statistically significant increase of \$139 for younger participants, but no significant changes occurred for participants over age 36. This probably is related to younger people having larger rates of salaried employment. In rounds 7 and 8, the growth in income was not significant for either group.

5. Changes in employment and income by level of education

We also conducted subgroup analysis on employment and income changes by levels of education. This is of interest for stakeholders, given that one of the target groups is young women and men between ages 17 and 24 who have completed at least 9th grade. Participants in the non-formal skills training had diverse levels of education, from primary through higher education. We divided the sample of rounds 5–8 into four educational groups: participants with primary education (0–5 years), lower secondary education (6–9 years), upper secondary education (10–12 years), and postsecondary education (13–17 years). Detailed results are presented in Appendix Figures A.5 and A.6, and are discussed below.

In survey rounds 5 and 6, all education groups had statistically significant increases in employment. In rounds 7 and 8, employment growth was significant only for participants with primary or upper secondary education. Growth in employment for these groups was driven by self-employment and salaried employment, although the role of the latter was greater for participants with upper secondary education. As can be seen in Figure A.5, in rounds 5 and 6, employment increased for participants at all education levels, but participants with lower or upper secondary education had larger gains (33 and 40 percentage points, respectively, compared to 23 percentage points for both the primary and postsecondary education groups). Self-employment and salaried employment grew significantly for all education groups except those with postsecondary education. Salaried employment grew by twice as much (20 percentage points) for participants with upper secondary education, compared to participants with lower secondary education (10 percentage points). In rounds 7 and 8, employment increased significantly only for participants with lower or upper secondary education (growing by 16 percentage points for both groups). In rounds 7 and 8, growth in self-employment was much smaller and was significant only for the upper secondary group (growing by 7 percentage points). Growth in salaried employment remained significant for both lower and upper secondary groups, growing by 10 and 14 percentage

points, respectively. These results are slightly different than those found in the Interim Report for rounds 2–4, in which participants with higher levels of education appeared to benefit more than less educated workers.

In survey rounds 5 and 6, we found statistically significant increases in total annual income for all educational groups but postsecondary. In rounds 7 and 8, the only statistically significant change was a larger total income for the upper secondary group. As can be seen in Figure A.6, income increased for respondents at every education level in rounds 5 and 6; however, the change for the postsecondary group was not statistically significant, whereas the increments for primary and lower secondary were significant—\$299 and \$415, respectively. For rounds 7 and 8, the only significant increment was a \$227 gain in total annual income for the upper secondary group, which seems to have been driven by a significant increase in principal income. This may be related to the finding that salaried employment showed a large increment for this educational group. We should note that the results for these last rounds are different than the findings discussed in the Interim Report for rounds 2–4, in which participants with higher levels of education appeared to benefit more from the course in terms of employment and income.

6. Changes in employment and income by course

We also analyzed whether changes in employment rates and income varied by the type of training course that participants completed (see Appendix Tables A.6 and A.7). We completed this analysis using the sample of participants surveyed in rounds 5–8 who reported taking one of the five courses with the highest number of participants: tailoring of school uniforms, pastry making, automobile mechanics, cooking, and baking (Figure IV.2). Below, we summarize the key findings from this analysis.

For rounds 5–8, employment increases were statistically significant for participants in the five most popular courses. In rounds 5 and 6, the largest increase in employment was for participants in the tailoring school uniforms, whereas in rounds 7 and 8, it was for participants in cooking classes. Not all of the five most popular classes were popular in every round. Tailoring school uniforms was popular in all rounds from 5–8, but pastry making was popular only in rounds 5 and 6. The automobile mechanics, cooking, and baking courses were more popular in rounds 7 and 8 than in rounds 5 and 6; there were no participants in automobile mechanics in rounds 5 or 6. As shown in Appendix Table A.5, employment increased significantly for participants in school uniform tailoring and pastry making in rounds 5 and 6, and for participants in all five classes in rounds 7 and 8 (although the increase was only marginally significant for pastry making). Growth in employment was smaller in rounds 7 and 8 than in rounds 5 and 6. Bakers, cooks, and auto mechanics were more likely to find salaried work in all rounds. Those who studied tailoring were more likely to find self-employment in rounds 5 and 6. Those who studied pastry making were likely to find self-employment in rounds 5 and 6, but more likely to find salaried employment in rounds 7 and 8 (although the changes on self-employment and salaried employment were not significant in these rounds for participants in the pastry-making courses).

For rounds 5–8, we found significant changes in income for tailoring of school uniforms and pastry making, the two most popular courses, but not for cooking and automobile mechanics. Despite the popularity of cooking, baking, and automobile mechanics courses, we did not find statistically significant changes in total income in rounds 5–8. This result is in contrast to

the result found in the Interim Report for the first four survey rounds, when the incomes of participants in cooking courses increased. As shown in Appendix Table A.6, we found statistically significant increases in income for participants in tailoring and pastry making in rounds 5 and 6. The largest increase in income was for participants in the school uniform tailoring course, whose incomes rose from \$274 to \$649. For participants in the pastry-making course, incomes rose from \$519 to \$862. Furthermore, for rounds 5 and 6 baking has an almost significant change driven by larger principal income. In rounds 7 and 8, school uniform tailoring participants were the only ones to experience a significant increase in income, which increased from \$681 to \$862. The increases for the tailoring group are not surprising, given the increased demand for school uniform tailoring skills at the time because of the new government policy to provide free school uniforms.

7. Changes in employment and income for PILAS participants

In this section, we discuss pre-post changes in employment and income for the sub-sample of PILAS participants who responded to the non-formal skills survey in rounds 5–7. PILAS participants received job search support in addition to the non-formal skills training. As reported in Table A.2, 26 percent of respondents in round 5, 17 percent in round 6, and 10 percent in round 7 participated in PILAS. Only one person participated in PILAS in round 8, likely due to the cessation of most compact-funded activities in mid to late 2012. Therefore, the analysis presented here restricts the sample to rounds 5-7.

In rounds 5–7, 17 percent of the sample of respondents participated in PILAS. Of the 150 survey respondents who participated in PILAS in rounds 5–7, 104 were female and 46 were male. When asked about what type of PILAS services they received, 82 out of 150 (55 percent) respondents said they had received advice related to salaried employment, and 66 (44 percent) said they had received self-employment assistance (see Appendix Table A.7). Below, we examine the changes in employment rates for PILAS participants before and after the program (Table V.4). First we discuss the changes in employment and income for PILAS participants. Then, we compare them to the changes for PILAS non-participants during the same time period. However, we should note that PILAS was offered only to course participants who exhibited potential for labor insertion, according to the PILAS implementers. As such, a comparison between PILAS participants and non-participants should assume initial differences between these two groups in terms of skills and motivation.

Employment increased significantly for PILAS participants, driven by growth in salaried employment. Increases in employment were similar in magnitude for the PILAS sample and the overall sample. Before the training, 54 percent of PILAS participants were employed. After the training, employment among PILAS participants grew to 78 percent (increase of 24 percentage points). This growth was driven by significant increases in salaried employment (19 percentage points), whereas growth in self-employment was not statistically significant. Substantial increases in salaried employment among PILAS participants may be due in part to the incentives for PILAS providers, whose payment was contingent on their participants' retaining a paid job for 60 days. This may have incentivized providers to recruit participants they thought were most likely to find salaried employment, and to place them in salaried jobs that could be verified with paystubs. Furthermore, as mentioned above, implementers mentioned that they were more likely to offer services for self-employment to people who already had a job so these people will not present a

change in employment, i.e., they will remain self-employed (note that before 31 percent of PILAS participants was self-employed before the training).

Table V.4. Changes in employment among PILAS participants, rounds 5–7

Outcome	Before training	After training	Change	Sample size	p-value
Employed (%)	52	78	26	150	0.000
Self-employed (%)	31	36	5	150	0.218
Salaried employed (%)	10	29	19	150	0.000
Other employed (%)	11	13	3	150	0.350
Hours worked weekly (hours)	16.87	24.64	7.77	150	0.000

Source: Non-formal skills survey, 2011–2012 (rounds 5–7).

Note: The change presented in the table may not be equal to the difference between before and after results due to rounding.

Sample size for rounds 5 and 6 is 117. Sample size for round 7 is 33. Results are pooled for rounds 5 to 7 for PILAS participants because very few participated in round 7. Round 8 was excluded from analysis because PILAS did not serve them due to compact closeout.

The p-value on a chi-squared test of the difference between the distribution of employment outcomes before and after the Sub-Activity is 0.000.

We found positive and statistically significant changes in total annual income indicators for PILAS participants. In rounds 5–7, all types of income increased significantly for PILAS participants, including an increase of \$168 in net income from participants’ principal economic activity and an increase of \$129 in secondary income. Combining all types of income, we found that total net annual income increased by \$412, or 51 percent. These results are presented in Table V.5.

Table V.5. Changes in annual income among PILAS participants (in USD)

Outcome	Mean before training	Mean after training	Change	Sample size ^a	p-value
Net income from principal activity	\$627	\$797	\$169	137	0.027
Net income from secondary activity	\$42	\$171	\$129	145	0.003
Additional income	\$156	\$251	\$95	149	0.024
Total net income	\$817	\$1,232	\$415	133	0.000

Source: Non-formal training survey, 2011–2012 (rounds 5–7).

^aThe different sample sizes for each component of income are due to missing data. In particular, there was a greater frequency of respondents in round 5 who responded “do not know” and thus are missing income information. Net income from principal and secondary activity and additional income do not sum to total net income because of differences in sample sizes for each indicator.

PILAS participants were as likely as non-participants to find employment, but more likely to find salaried employment. In Table A.8 we present the results for respondents in rounds 5–7 that did not participate in PILAS, compared to PILAS participants. A major caveat of this comparison is that PILAS participants may be more or less motivated and skilled than non-participants, on average, and these characteristics may explain some differences in outcomes. Regarding employment, the pre-post change in employment for PILAS participants and non-

participants is similar at 26 percent. However, PILAS participants experienced a greater increase in salaried employment: 19 percent compared to 11 percent for non-participants but this difference is not statistically significant at the 10 percent level ($p=0.11$).

Both PILAS participants and non-participants reported increases in total income, but PILAS participants experienced larger income increases in secondary income. Total annual income increased by \$415 for PILAS participants versus \$273 for non-participants, but this difference is not statistically significant. This larger income increase for PILAS participants is driven by a statistically significant larger increase in secondary income (\$129 for PILAS participants versus \$31 for non-participants), which could include income from any type of employment other than participants' main job. This result is difficult to interpret because it is primarily driven by growth in PILAS participants' secondary income, and PILAS was designed to improve participants' primary source of employment and income. Given these findings and the study's non-rigorous design, there is no conclusive evidence that PILAS assistance led to increased employment and income over and above non-formal skills courses. However, the larger increase in secondary income experienced by PILAS participants compared to non-participants may suggest some positive effects of the program.

8. Experiences and opinions about courses

To better understand the facilitators and challenges to training completion and employment according to participants, in this section we will analyze survey questions that asked participants about their experiences and opinions of the courses they took. These results are presented in Appendix Table A.9 and are discussed briefly below.

In rounds 5–8, 28 percent of survey respondents responded that they had started their own business or began work that earned an income as a result of the training courses. This is higher than the average observed increase in employment of 22 percent for these survey rounds. Furthermore, 13 percent of survey respondents indicated that they used what they learned in the courses to start their own business, 11 percent said they used what they learned to find temporary employment, and 3 percent said they used what they learned to find some other type of employment. Although these findings are encouraging, they should be considered in combination with the result that only 1 percent of respondents indicated that the courses had led them to find permanent employment.

Respondents' informal networks are the most important source for finding employment. The most common strategy for finding employment, used by 51 percent of respondents, was to network with friends and relatives. Another 24 percent continued to work in a family business, whereas 9 percent negotiated to obtain the financial resources necessary to start their own business. Only 8 percent of respondents indicated that they had taken a more formal path to employment: 6 percent negotiated directly with a business or farm, 1 percent contacted an employment agency, and less than 1 percent responded to or placed an employment advertisement in the newspaper.

Overall, respondents show a high degree of satisfaction with the courses, and the aspects most valued were knowledge gained, improved communication skills, and learning a specific new skill. Respondents scored their courses on a scale from 1 to 5, where a score of 1 represents "very bad," and a score of 5 represents "very good." Survey respondents gave their courses an overall score of 4.5, on average. Evaluating the firm that offered a course, the instructor, logistics,

content, and schedule on the same scale, every item received an average score of 4.3 or above. Respondents were also asked to select two of five aspects of the course they took that were most valuable to them. Knowledge gained, improved communication skills, and learning a specific new skill were the three most frequently chosen characteristics (46 percent or more of respondents selected these options), whereas receiving a training certificate and putting knowledge to work in community projects were the least popular (less than 13 percent of respondents chose these).

Respondents indicated that more time for training and practice would have improved the courses. When asked to choose two aspects of the courses that would benefit from improvement, 64 percent of respondents indicated that they would have benefited from having more time for training, whereas 57 percent suggested more time to practice what they were learning. Twenty-two percent of respondents suggested that they needed better materials or equipment, and 13 percent suggested better explanations of specific topics.

9. Overall findings and interpretation

In order to provide a better understanding of the findings across all the rounds analyzed Table V.6 summarizes key results presented in the Interim Report, rounds 2-4; the results for rounds 5-8, which are the focus of this report; and overall results. Results from round 1 are not included because of limitations of the survey used in that round.

Pre-post changes in employment were significant in all rounds, but were smaller in magnitude in rounds 7 and 8. This difference was driven by lower self-employment in the later rounds. Salaried employment was similar across rounds. We find statistically significant increments in employment in all rounds, but in rounds 2-6 we find that employment grew near 30 percentage points while in rounds 7 and 8 we find a 14 percentage point increase in employment. Table A.3 presents data by round and Table A.12 presents the results of an additional analysis of the differences across rounds. In the additional analysis we find that employment changes in round 7 are significantly different than employment changes in each of the previous rounds and we found no statistically significant difference between employment changes in rounds 7 and 8. Similarly, changes in self-employment between round 7 and any previous round are statistically different but no significant differences arises between rounds 7 and 8. In contrast, salaried employment in round 7 is not significantly different to salaried employment in any other round. The differences between changes in employment and self-employment in rounds 2-6 and 7-8 are in part due to the modifications to the instrument that allow us to obtain more reliable estimates in rounds 7 and 8, and in part due to actual lower employment and self-employment in the later rounds. However, it is not possible to assess how much of the difference is due to the instrument modification or to actual lower employment (or self-employment). In the additional analysis, summarized in Table A.12, we used regression analysis to assess if the differences across rounds could be explained by individual characteristics such as being female, being between 17 and 35 years of age, living an urban area, having received PILAS, or having taken more than one course. We find that while some of these individual characteristics do have a significant relation with employment changes, they cannot explain the differences across rounds which remain statistically significant even after discounting the effects of individual characteristics. As shown in Table V.6, we find that overall employment increased by 26 percentage points for rounds 2 to 8 and this change is statistically significant. However, as mentioned before, this estimate could be biased upward due to the limitations of the instrument used in rounds 2-6. A more conservative estimate that is based on a

more reliable instrument comes from round 7 when employment increased by 17 percentage points (Table A.3).

Table V.6. Key findings overall (percentage unless specified)

Outcome	Mean before training	Mean after training	Change	Sample size	p-value
Survey rounds 2–4					
Employed	41	71	30	1,525	0.000
Self-employed	19	34	15	1,525	0.000
Salaried employed	16	26	10	1,525	0.000
Other employed	7	11	5	1,525	0.000
Hours worked weekly (hours)	13.15	21.81	8.66	1,525	0.000
Total net annual income (dollars) ^a	\$698	\$1,112	\$414	988	0.000
Survey rounds 5–6					
Employed	37	69	32	532	0.000
Self-employed	20	35	14	532	0.000
Salaried employed	9	22	13	532	0.000
Other employed	8	13	4	532	0.001
Hours worked weekly (hours)	11.77	19.35	7.59	529	0.000
Total net annual income (dollars)	\$586	\$911	\$325	479	0.000
Survey rounds 7–8					
Employed	46	60	14	628	0.000
Self-employed	23	28	5	628	0.002
Salaried employed	15	25	10	628	0.000
Other employed	8	7	-2	628	0.197
Hours worked weekly (hours)	15.09	19.77	4.69	628	0.000
Total net annual income (dollars)	\$917	\$1,009	\$93	622	0.143
Overall, rounds 2–8					
Employed	42	68	26	2,685	0.000
Self-employed	20	32	12	2,685	0.000
Salaried employed	14	25	11	2,685	0.000
Other employed	7	10	3	2,685	0.000
Hours worked weekly (hours)	13.33	20.85	7.52	2,682	0.000
Total net annual income (dollars) ^a	\$738	\$1,035	\$298	2,089	0.000

Source: Non-Formal Training Survey, rounds 2–8.

^aData required to calculate total net annual income for round 2 was incomplete, so it was excluded from this analysis.

Growth in income was significant in rounds 3 to 6, but smaller for the later rounds. We find statistically significant growth in total annual income in rounds 3–6 (\$325), but not statistically significant in rounds 7 and 8. Looking at income changes by rounds (Table A.3) we find that round 7 had significant income growth but not round 8. Furthermore, the additional analysis (Table A.12) finds that although the changes in income vary across rounds, when comparing income changes of round 7 to all other rounds, the only statistically significant difference is between rounds 7 and 8. The instrument used in rounds 7 and 8 is the same, therefore the lower changes in income found in round 8 are not related to instrument modifications. They are also not explained by individual characteristics as shown in the regression analysis that controls for individual characteristics such as female, age, and urban. As shown in Table V.6, for rounds 3 to 8 we find that total net annual income increased by \$298 and this change is statistically significant. In round 7, income increased by \$254 which could be used as a more conservative estimation of income change (Table A.3).

We estimate that MCC's employment and income goals were almost met. Translating the increase of 7.5 hours worked per week into annual FTEs, we estimate that course participants generated an additional 0.19 FTEs in the year following the completion of their first non-formal skills training course. Multiplying these additional FTEs by the number of course graduates (6,888), we estimate that in the aggregate, course graduates increased their employment by 1,295 FTEs in the year following their course. This was of the similar magnitude, but lower than, the goal of 1,875 FTEs among graduates of training program specified in the MCC-El Salvador M&E Plan (2012). To meet this goal, graduates would have had to experience an increase of 0.27 FTEs in the year following the course, equivalent to an increase of 10.9 hours worked per week. Average income before training for rounds 2-8 was \$738 and increased to \$1,035 after training, a difference of \$298, equivalent to a 40 percent increase in income for graduates. MCC's goal of 35 percent increase in income specified in the M&E Plan was, therefore, surpassed. However, changes in income may be overestimated specially in rounds 2-6 as we explain below.

Revisions to the instrument used in the final two rounds may have contributed to these differences across rounds, especially on employment, but we expect the estimate of the last two rounds to be more accurate. As we discussed in Chapter III, after conducting the analysis for the Interim Report, we changed the survey instrument used in rounds 7 and 8 substantially. One important limitation of the survey instrument used in rounds 2–6 was that questions about employment and income before training differed from the post-training questions. Thus, the changes observed before and after the training found in the Interim Report, and that we report here for rounds 5 and 6, could be due in part to the differences between questions. Whereas the original goal of the survey was to collect monitoring data and not measure pre-post changes, this study's main purpose was to reliably estimate pre-post changes on employment and income; thus, the instrument for rounds 7 and 8 was modified so that the questions asked for pre-intervention employment and income were the same used for post-intervention. Specific changes to the instrument are discussed in detail in Appendix Table A.1. The modifications to the instrument reduce the possibility that part of the pre-post changes in employment and income were due to the use of different questions. In particular, in rounds 7 and 8 people who regularly engaged in informal economic activities were coded as employed both in the pre and post-intervention periods whereas in previous rounds these people had not been identified in the pre-intervention period and coded as unemployed but they were identified in the post-intervention period and coded as unemployed. For this reason, we believe that the pre-post changes in employment and income observed in rounds 7 and 8 represent more accurate measures of the actual changes in participants' employment and income.

Despite differences in the survey instrument, it is possible that participants in later rounds experienced smaller increases in employment and income. Participants in rounds 7 and 8 had more accurate employment and income indicators before the training as compared to previous rounds. As we explained above, smaller improvements in employment and income for these cohorts relative to previous cohorts may reflect changes in the survey instrument. But an additional explanation for these differences is that by the last rounds of implementation, the most motivated individuals, or those most in need of the training, had already had taken non-formal skills courses. This theory would be consistent with the fact that participants in the last rounds had better baseline employment indicators (Table A.3). Improving employment and income for individuals with higher baseline indicators may have been more challenging, especially by rounds 7 and 8. Also, post-training questions did not change throughout survey rounds, and we find lower

post-training employment in rounds 7 and 8 than in previous rounds (Table A.3). A theory consistent with these relatively low employment figures would be that the employment opportunities had been saturated in 2012 and early 2013 by the participants in earlier rounds, so it was harder for round 7 and 8 participants to find jobs in sectors related to non-formal skills courses.

Economic changes in the Northern Zone are unlikely to explain the increases in employment or income, but we cannot rule out upward trends in employment and income in the absence of the Sub-Activity. According to DIGESTYC's annual nationally representative household survey for the Northern Zone, the employment rate never changed by more than 1.6 percent in any of the years included in the intervention period (Table A.10). Average household income in the Northern Zone never changed by more than 3 percent during the same period. With the exception of income in round 8, the changes in employment and income reported here are far larger than the changes in the economic context of the Northern Zone (employment rates and average household income are presented in Appendix Table A.10; changes in employment and income for the time period corresponding to each survey round are presented in Appendix Table A.11). Although this suggests that changes in the economic context do not explain the changes observed in participants' labor market outcomes, we are not able to rule out the possibility that the significant increases in employment and income observed in most rounds are due to upward trends in employment and income that participants would have experienced in the absence of the intervention.

10. Updates to inputs used for MCC's ERR analysis

Although this study cannot identify the pre-post changes in employment and income that are caused by the Sub-Activity, the data used in this study can be used to update some of the inputs used to calculate the Sub-Activity's ERR. In the final ERR calculations, MCC estimated the benefit stream of the Sub-Activity by accounting for the income gains of five categories of participants whose income change is related to training: (1) individuals who have permanent employment as a result of training, (2) individuals who have permanent self-employment as a result of training, (3) individuals who have temporary self-employment as a result of training, (4) individuals who have temporary employment as a result of training, and (5) individuals who have custom business employment as a result of training. MCC also calculated the income change for people who reported that their income change was unrelated to training. The table below shows the estimated inputs used for MCC's closeout ERR calculations, along with our updated calculations. We should note, however, that instead of presenting the five categories MCC reported, we aggregated the last two categories into other employment because we could not identify the same categories MCC used.

In Table V.7, we compare estimated values using data from rounds 3 to 8 to MCC's assumptions used in the final ERR calculation. With survey data, we find lower employment resulting from training in three of the categories: (1) permanent employment, (2) temporary employment, and (3) self-employment. (The difference is largest for temporary employment.) Using MCC's inputs and aggregating employment across the four categories presented in the table, we find that 44.4 percent of participants engaged in an income-generating activity as a result of training. In contrast, using estimates from rounds 3 to 8, we estimate that 32.6 percent of participants engaged in an income-generating activity as a result of training. As a result,

employment resulting from training is 11.8 percentage points lower using data from rounds 3 to 8 than using MCC's closeout ERR calculation.

Table V.7. Comparison of MCC estimated values used for the closeout ERR calculation to estimates using data from all rounds

Component	Estimates for MCC's ERR calculation at closeout	Mathematica estimates (rounds 3–8)
Percentage of participants who have permanent employment after the course as a result of training	1.8	1.4
Percentage of participants who have temporary employment after the course as a result of training	24.5	13.3
Percentage of participants who are self-employed after the course as a result of training	14.5	13.7
Percentage of participants who are employed in other type of employment after the course as a result of training	3.6	4.2
Percentage of participants who engage in an income-generating activity after the course as a result of training^a	44.4	32.6
Income change for permanently employed as a result of training (annual)	\$367	\$645
Income change for temporarily employed as a result of training (annual)	\$293	\$59
Income change for self-employed as a result of training (annual)	\$150	\$425
Income change for other employment as a result of training (annual)	\$521	\$299
Income change unrelated to training (annual) ^b	\$158	\$148

Source: For each component, assumed values come from closeout ERR calculations provided by MCC, revised on August 2, 2012. Estimated values for employment and income for the relevant populations come from the Non-Formal Training Survey, rounds 2 to 8. Income estimates include only primary and secondary income.

^aThe percentage of participants who engage in an income-generating activity after the course as a result of the training was calculated by adding the percentage in each of the five categories specified in the table.

^bThe survey asked whether the respondent engaged in an income-generating activity due to training. People who answered that their income change was not due to training are included in this category.

In terms of income changes resulting from training, we calculate larger income increases using data from rounds 3 to 8 compared to MCC inputs for two categories—permanent employment and self-employment (\$645 versus \$367 and \$425 versus \$150, respectively)—but smaller income increases for temporary employment and other employment (\$59 versus \$293 and \$299 versus \$521, respectively).

MCC also used income gains unrelated to training as an input for the ERR. Specifically, MCC subtracted income gains unrelated to training from income gains related to training to produce an estimate of training's net income benefit. Using data for rounds 3 to 8, we estimate that the average income increase unrelated to training was \$148. MCC assumed a comparable income increase unrelated to training of \$158.

MCC calculated the net benefit stream of the Sub-Activity by subtracting the income change unrelated to training (\$158) from the five categories presented in Table V.7, in which income changed as a result of training. As illustrated in Table V.8, the net income benefit assumed by MCC is lower in the first three categories presented in the table, but higher for the two last categories in the table. Overall, taking an average of these net benefits—weighted by the

percentage of participants in each of the categories—MCC estimated a net gain of \$49 for an average participant. We estimate a lower net gain of \$39 when using data from rounds 3 to 8. This translates into a lower ERR because the benefit stream we estimate is about 20 percent lower than of the benefit stream estimated by MCC at closeout.

Table V.8. Comparison of MCC estimated net benefits used for the closeout ERR calculation to estimates using data from rounds 3–8

Component	Estimates for MCC's closeout ERR calculation	Mathematica estimates (rounds 3–8)
Net income benefit for permanently employed	\$209	\$497
Net income benefit for temporarily employed	\$135	-\$89
Net income benefit for self-employed	-\$8	\$277
Net income benefit for other employment	\$363	\$152
Estimated net benefit of training for an average participant^a	\$49	\$39

Source: For each component, assumed values come from closeout ERR calculations provided by MCC, revised on August 2, 2012. Estimated values for employment and income for the relevant populations come from the Non-Formal Training Survey, rounds 3 to 8. We omitted rounds 1 and 2 because of measurement issues in those rounds.

^aThe estimated net benefit of training for an average participant is calculated by multiplying the net income benefit for each of the five categories by the percentage of participants in that category, and adding the five numbers. In other words, it is a weighted average of net benefits weighted by the percentage of participants in each category. This also assumes that the net benefit for participants whose income change is unrelated to training is zero.

11. Lessons learned

In July of 2012, Mathematica staff met with one implementer and with representatives from CIDE and FOMILENIO to discuss the implementation of the Sub-Activity. The following lessons emerged from these meetings.

Participants' interests and commitment were generally not assessed. The original design for the training sub-activity, developed by CIDE, included a first stage in which implementers would assess each participant's interests and capacities, and then match participants to courses based on these interests and capabilities. Under this proposed system, applicants who were not well matched for a particular course would be referred to other relevant courses. However, in practice this process was not implemented. For the most part, providers sought to reach full enrollment for their courses, without verifying that each participant's interests and capacities were fully aligned with the course. The result was that a nontrivial proportion of participants took courses in which they were not highly interested or did not have prerequisite skills.

Some course offerings never successfully matched participant interest with labor market demand. Furthermore, saturation of a market was not taken into account. Stakeholders mentioned that courses were generally provided in response to participant interest. However, potential labor market saturation was not a factor in determining the number or type of courses provided in a particular locale. For example, in some municipalities, baking courses were given several times due to high participant interest, resulting in a large number of trained bakers with few employment prospects. A stakeholder mentioned that in some cases, a course identified as having strong potential for labor insertion was offered. However, implementers often had difficulty

finding enough participants for these courses. As such, several courses did not have the two critical ingredients of (1) sufficient market demand for skilled labor and (2) sufficient participant interest to justify administering the course.

Information on labor demand in the region could have been better used to inform course offerings. CIDE and FOMILENIO mentioned the lack of available data, in particular labor market data for the Northern Zone, as a barrier for assessing labor demand in the region. Without these data it was not possible to design Sub-Activity courses to directly meet local labor demand. In 2011, the Ministry of Labor provided labor market data to CIDE and FOMILENIO, and they used these data to develop a skills training plan based on existing local labor demand. However, this plan was not implemented due to the fact that only one year remained in the compact timeline, and because the implementers thought it would be too time-consuming and labor-intensive to implement.

PILAS job placement efforts were insufficient. Stakeholders mentioned that PILAS was provided too late in the training cycle—generally some months after trainees had completed courses—and that many opportunities for placement were lost due to PILAS’s compressed 12-month implementation period. Stakeholders noted that all training courses should have been linked to a job placement or self-employment program from the outset, and that the overall goal of the Sub-Activity should have been training and labor placement, as opposed to training. They also mentioned that a more streamlined version of PILAS may be easier to implement—for example, targeted business start-up services based on concise but complete business plans.

12. Summary and policy implications

The results presented here show that there is a demand for non-formal skills training in the Northern Zone of El Salvador. Furthermore, the fact that 95 percent of those who enrolled in a non-formal skills course completed it suggests that the approach taken in the implementation of the Sub-Activity was feasible for the intended beneficiaries. INSAFORP’s efforts to provide training courses in places and at times that were convenient for participants may have been important in this success. Additionally, providing topics of interest to participants and that were linked to employment opportunities in the area may have contributed to the significant growth in employment and income observed among them.

Participant feedback may be useful for implementers in identifying strategies to improve course effectiveness. Overall, the courses were popular among participants (survey respondents rated the courses 4.5 out of 5, on average). However, the majority of survey respondents in the last four rounds indicated that they would have benefited from more time for training and more opportunities to practice what they were learning. Some of these participants may have satisfied their desire for more time by taking a second course, but in other cases, it may have been beneficial to extend the courses by more hours or days, or to introduce an internship or on-the-job component to some courses.

Participant satisfaction is not enough to justify funding a training program, however; the program also must be effective in improving participants’ lives. The evidence presented here is consistent with the possibility that the Sub-Activity’s training activities contributed to improved labor market outcomes for participants. These changes were of a great enough magnitude that they may also have translated into improvements in participants’ well-being.

The success of the Sub-Activity is not limited to a specific subgroup. Although the scale of the apparent effect varied, increases in employment were broad based: employment increased significantly after the training for men, women, older, younger, and more and less educated participants. The diversity of the population that appears to have benefited from the training suggests that the training may be successful if scaled to new areas within El Salvador and other contexts in the region. If policymakers must focus on specific subgroups due to budget constraints, these results suggest they should consider prioritizing women and youth—two subgroups that tend to have lower baseline employment and income levels.

Based on the relatively large pre-post gains in income among tailoring course participants—who secured large school uniform contracts with MINED following their completion of courses—this analysis suggests that offering participants courses designed to equip them to meet immediate market demand may have strong potential for large gains in employment and income. To be implemented broadly, such a demand-based approach would require strong involvement from potential employers or buyers early in the design process—both in the selection of courses as well as the design of their curricula.

PILAS participants' changes in employment and income were similar to those of PILAS non-participants. Therefore, we cannot conclude that PILAS improved non-formal skills course participants' employment and income, over and above the courses themselves. However, a program linking course graduates with potential employers has strong face validity, given information constraints and a general unavailability of job coaching, job placement services, and seed capital in developing countries. If possible, efforts to link potential employers with course participants even earlier in the training process—through internships that occur concurrently with courses, for example—could provide an earlier link between employers and future employees that might improve employment outcomes. Such an approach would also directly address participants' recommendation of more training and practice time during courses, as well as ensure that participants learn skills desired by potential employers during training.

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APPENDIX TABLES AND FIGURES

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Table A.1. Main outcomes and measurement issues

Outcome	Measurement issues
Employment indicators	
Employed Self-employed Salaried employment Other employment Hours worked weekly Full time equivalent	<p>For post-training employment, only asked about the previous week or an imminent return to work (all rounds).</p> <p>For pre-training employment, after asking the respondent if he/she was employed, only the survey used in rounds 7 and 8 then asked the respondent a follow-up question to see whether the respondent regularly engaged in informal economic activity. If so, these individuals then were coded as employed. Absent this extra check, these employed individuals might have been coded as unemployed before training in survey rounds 2–6, leading to an overestimate in the change in employment and income. This issue was corrected for survey rounds 7 and 8.</p> <p>If respondents indicated that they engaged in informal activities, such as preparing and selling food or caring for livestock, but not regularly, they were coded as unemployed in all rounds.</p> <p>Not included in round 1.</p> <p>Not included in round 1.</p> <p>Not included in round 1.</p> <p>Only asks about the past week.</p> <p>FTE is defined as working eight hours per day for 250 days a year. With data on how long a respondent had been at a certain job before intervention, we assumed that he/she worked 12 months per year if he/she had been at that job for at least a year. If the respondent was at that position for less than a year, we used the number of months listed. To calculate number of months worked post-intervention, we used data on how many months out of the last year a respondent had received a certain salary. We assumed that the number of months the respondent received that specific salary post-intervention was the same number of months she/he worked. For both pre- and post-intervention, we assumed that the respondent worked four weeks per month. We calculated the FTE by multiplying weekly hours by four weeks by number of months, then dividing that figure by 2,000.</p>
Income indicators	
Total net annual income from principal economic activity	<p>Only asked about income earned in the past month.</p> <p>For the survey used in rounds 2–6, even though both pre- and post-intervention questions asked about monthly income in the past month, the survey did not ask for how many months this income was earned in the 12 previous months for pre-intervention but did ask for post-intervention. We imputed the number of months the income was earned pre-intervention using how long a respondent had been at a certain job before intervention; we assumed that he/she earned that income 12 months per year if he/she had been at that job for at least a year. If the respondent was in that position for less than a year, we used the number of months listed. We then multiplied this number of months by income earned in the month to get annual income.</p> <p>In rounds 7 and 8, the survey was modified to ask how many months the respondent earned her/his monthly income rather than for how many months he/she had that job.</p> <p>Annual measures for pre-intervention income for rounds 1 and 2 seemed unreliable; hence, only monthly measures were used for those rounds. In subsequent rounds, monthly measures were used to estimate annual measures.</p>

Outcome	Measurement issues
Total net annual income from secondary economic activity	<p>Only asked about income earned in the past month. Not included in round 1.</p> <p>In survey rounds 2–6, a pre-intervention question asked for net annual secondary income but post-intervention questions asked for gross monthly income in the previous month, monthly costs, and how many months this income was earned in the previous 12 months. Thus, for the post-intervention measure, the annual net income was calculated by subtracting costs from gross income and multiplying this number by the respondent answer regarding the number of months in which the income was earned.</p> <p>In survey rounds 7 and 8, rather than asking for gross income and costs, the survey asked directly for net income from a secondary economic activity.</p>
Additional total annual income	<p>Not included in round 1.</p> <p>In survey rounds 2–6, the pre-training question about additional income sources was limited to five specific sources, whereas the corresponding question about additional income earned after the training included a longer list of options. The change in additional income was calculated based on the subset asked about in the pre-training question. For rounds 7 and 8, the full list was used for the pre-training and post-training questions.</p>
Total net annual income	<p>All of the measurement issues discussed above for each component of total annual income (principal, secondary, and additional income) affect this measure.</p>

Table A.2. Characteristics of survey respondents, by survey round

Characteristics	Rounds	Mean	SD	Sample size
Baseline characteristics				
Age (years)	5	30.03	10.15	312
	6	30.46	11.87	220
	7	31.33	11.62	337
	8	28.68	10.68	291
	Overall	30.15	11.09	1,160
Female (%)	5	69	46	312
	6	74	44	220
	7	78	42	337
	8	47	50	291
	Overall	67	47	1,160
Work experience (years)	5	2.91	6.48	312
	6	2.07	4.99	220
	7	3.03	7.07	337
	8	3.21	6.31	291
	Overall	2.86	6.37	1,160
Unemployed female ages 17–35 (%)	5	38	49	312
	6	40	49	220
	7	38	49	337
	8	22	41	291
	Overall	34	47	1,160
Unemployed male ages 17–35 (%)	5	9	29	312
	6	13	34	220
	7	6	24	337
	8	17	37	291
	Overall	11	31	1,160
Post-training characteristics				
Urban (%)	5	22	41	312
	6	45	50	220
	7	28	45	337
	8	27	45	291
	Overall	30	46	1,160
Has children (%)	5	56	50	312
	6	58	49	220
	7	61	49	337
	8	50	50	291
	Overall	56	50	1,160
Number of economic dependents	5	1.32	1.59	312
	6	1.32	1.69	220
	7	1.38	1.76	337
	8	1.46	1.68	291
	Overall	1.37	1.68	1,160
Taken more than one course (%)	5	17	37	312
	6	15	35	220
	7	9	29	337
	8	2	15	291
	Overall	11	31	1,160
Years of education	5	7.43	4.06	312
	6	8.29	3.27	220
	7	8.11	3.53	337
	8	8.54	3.55	291
	Overall	8.07	3.66	1,160

Characteristics	Rounds	Mean	SD	Sample size
Currently studying (%)	5	7.	26	312
	6	9	29	220
	7	8	27	337
	8	11	31	291
	Overall	9	28	1,160
PILAS participant (%)	5	26	44	312
	6	17	37	220
	7	10	30	337
	8	0	6	291
	Overall	13	34	1,160
Female ages 17–24 with at least 9th grade education (%)	5	14	35	312
	6	19	39	220
	7	18	38	337
	8	10	30	291
	Overall	15	36	1,160
Male ages 17–24 with at least 9th grade education (%)	5	10	30	312
	6	11	31	220
	7	8	28	337
	8	23	42	291
	Overall	13	34	1,160
Female with at least one dependent (%)	5	35	48	312
	6	40	49	220
	7	39	49	337
	8	29	45	291
	Overall	36	48	1,160

Source: Non-Formal Training Survey, 2011–2012.

Table A.3. Key results, by survey round

Outcome	Rounds	Mean before training	Mean after training	Change	Sample size	<i>p</i> -value
Employed (%)	2	42	74	32	537	0.000
	3	41	69	28	449	0.000
	4	41	69	28	539	0.000
	5	39	71	31	312	0.000
	6	35	68	33	220	0.000
	7	42	59	17	337	0.000
	8	51	61	10	291	0.001
	Overall	42	68	26	2,685	0.000
Self-employed (%)	2	19	35	17	537	0.000
	3	18	33	15	449	0.000
	4	20	33	13	539	0.000
	5	22	35	13	312	0.000
	6	18	35	17	220	0.000
	7	24	29	5	337	0.024
	8	21	26	5	291	0.039
	Overall	20	32	12	2,685	0.000
Salaried employed (%)	2	16	26	10	537	0.000
	3	16	28	12	449	0.000
	4	16	25	9	539	0.000
	5	10	25	14	312	0.000
	6	7	19	12	220	0.000
	7	14	25	11	337	0.000
	8	16	26	10	291	0.001
	Overall	14	25	11	2,685	0.000
Other employed (%)	2	7	13	6	537	0.000
	3	6	8	1	449	0.331
	4	6	12	6	539	0.000
	5	7	11	4	312	0.012
	6	10	15	5	220	0.041
	7	4	5	1	337	0.532
	8	13	9	-4	291	0.032
	Overall	7	10	3	2,685	0.000
Hours worked weekly	2	13.23	25.42	12.18	537	0.000
	3	13.46	20.97	7.51	449	0.000
	4	12.82	18.92	6.10	539	0.000
	5	11.96	18.55	6.59	310	0.000
	6	11.50	20.49	9.00	219	0.000
	7	12.36	17.29	4.93	337	0.000
	8	18.25	22.65	4.40	291	0.002
	Overall	13.33	20.85	7.52	2,682	0.000
Total net annual income	2	NA	NA	NA	0	NA
	3	\$660	\$1,085	\$426	449	0.000
	4	\$730	\$1,135	\$404	539	0.002
	5	\$462	\$808	\$347	273	0.000
	6	\$751	\$1,047	\$296	206	0.001
	7	\$897	\$1,151	\$254	335	0.000
	8	\$941	\$844	-\$96	287	0.384
	Overall	\$738	\$1,035	\$298	2,089	0.000

Source: Non-Formal Training Survey, 2011–2012.

Note: The *p*-value on a chi-squared test of the difference between the distribution of employment outcomes before and after the Sub-Activity is 0.003 for participants in round 8. For participants in all other rounds, and when survey rounds are combined, the *p*-value is 0.000.

Table A.4. Changes in annual personal income, by survey round

Survey round	Outcome	Mean before training	Mean after training	Change	Sample size ^a	p-value
5	Net annual income from principal economic activity	\$333	\$485	\$152	284	0.009
	Net annual income from secondary economic activity	\$33	\$100	\$67	301	0.000
	Additional annual income	\$113	\$227	\$114	309	0.000
	Total net annual income	\$462	\$808	\$347	273	0.000
6	Net annual income from principal economic activity	\$497	\$641	\$144	210	0.024
	Net annual income from secondary economic activity	\$43	\$93	\$50	218	0.103
	Additional annual income	\$221	\$333	\$112	217	0.006
	Total net annual income	\$751	\$1,047	\$296	206	0.001
7	Net annual income from principal economic activity	\$461	\$630	\$168	335	0.002
	Net annual income from secondary economic activity	\$58	\$87	\$29	337	0.204
	Additional annual income	\$375	\$436	\$61	337	0.033
	Total net annual income	\$897	\$1,151	\$254	335	0.000
8	Net annual income from principal economic activity	\$573	\$493	-\$80	289	0.470
	Net annual income from secondary economic activity	\$120	\$102	-\$19	289	0.548
	Additional annual income	\$249	\$267	\$18	291	0.428
	Total net annual income	\$941	\$844	-\$96	287	0.384
All	Net annual income from principal economic activity	\$464	\$560	\$95	1,118	0.012
	Net annual income from secondary economic activity	\$64	\$95	\$31	1,145	0.014
	Additional annual income	\$244	\$318	\$74	1,154	0.000
	Total net annual income	\$773	\$967	\$194	1,101	0.000

Source: Non-formal training survey, 2011–2012.

^aThe different sample sizes for each component of income are due to missing data. Total net income is not equal to the sum of principal, secondary, and additional income because of rounding and the difference in sample sizes.

Table A.5. Changes in employment by course

Course	Outcome (%)	Mean before training	Mean after training	Change	Sample size	<i>p</i> -value
Rounds 5 to 6						
Tailoring school uniforms	Employed	26	75	48	110	0.000
	Self-employment	14	42	28	110	0.000
	Salaried employment	5	23	17	110	0.000
Pastry-making	Employed	27	55	27	226	0.000
	Self-employment	15	32	17	226	0.000
	Salaried employment	7	11	4	226	0.068
Automobile mechanic	Employed	NA	NA	NA	0	NA
	Self-employment	NA	NA	NA	0	NA
	Salaried employment	NA	NA	NA	0	NA
Cooking	Employed	44	67	22	9	0.169
	Self-employment	11	11	0	9	1.000
	Salaried employment	11	33	22	9	0.169
Baking	Employed	47	88	41	17	0.004
	Self-employment	41	47	6	17	0.668
	Salaried employment	0	24	24	17	0.041
Rounds 7-8						
Tailoring school uniforms	Employed	35	49	14	168	0.000
	Self-employment	18	25	7	168	0.021
	Salaried employment	12	19	7	168	0.039
Pastry-making	Employed	36	55	18	33	0.056
	Self-employment	30	30	0	33	1.000
	Salaried employment	6	18	12	33	0.160
Automobile mechanic	Employed	62	77	15	107	0.007
	Self-employment	20	24	5	107	0.253
	Salaried employment	25	39	14	107	0.013
Cooking	Employed	34	53	19	89	0.002
	Self-employment	16	25	9	89	0.032
	Salaried employment	11	25	13	89	0.010
Baking	Employed	38	52	14	81	0.015
	Self-employment	30	35	5	81	0.349
	Salaried employment	7	14	6	81	0.167

Source: Non-Formal Training Survey, 2011–2012 (rounds 5–8). This table includes the courses that were among the five most popular courses in rounds 5–8.

Note: In rounds 5 and 6, the *p*-value on a chi-squared test of the difference between the distribution of employment outcomes before and after the Sub-Activity is 0.000 for participants in tailoring school uniforms and pastry-making courses; 0.682 for participants in the cooking courses and 0.023 for participants in the baking courses.

In rounds 7 and 8, the *p*-value on a chi-squared test of the difference between the distribution of employment outcomes before and after the Sub-Activity is 0.059 for participants in tailoring school uniforms courses, 0.172 for participants in pastry-making courses, 0.043 for participants in automobile mechanics courses, 0.017 for participants in pastry-making and 0.247 for participants in baking courses.

Table A.6. Changes in net annual income for top courses by round (in USD)

Course	Outcome	Mean before training	Mean after training	Change	Sample size	p-value
Rounds 5 to 6						
Tailoring school uniforms	Principal economic activity	\$166	\$406	\$240	101	0.014
	Secondary economic activity	\$23	\$54	\$31	110	0.137
	Additional income	\$73	\$192	\$119	108	0.000
	Total net annual income	\$274	\$649	\$374	99	0.000
Pastry-making	Principal economic activity	\$295	\$443	\$148	216	0.008
	Secondary economic activity	\$11	\$47	\$36	225	0.001
	Additional income	\$212	\$380	\$168	223	0.000
	Total net annual income	\$519	\$862	\$343	212	0.000
Automobile mechanic	Principal economic activity	NA	NA	NA	0	NA
	Secondary economic activity	NA	NA	NA	0	NA
	Additional income	NA	NA	NA	0	NA
	Total net annual income	NA	NA	NA	0	NA
Cooking	Principal economic activity	\$315	\$463	\$149	9	0.530
	Secondary economic activity	\$0	\$58	\$58	9	0.186
	Additional income	\$507	\$86	-\$421	9	0.222
	Total net annual income	\$821	\$606	-\$215	9	0.550
Baking	Principal economic activity	\$421	\$732	\$311	16	0.036
	Secondary economic activity	\$25	\$56	\$31	17	0.107
	Additional income	\$242	\$408	\$165	17	0.390
	Total net Annual income	\$705	\$1,219	\$514	16	0.057
Rounds 7 to 8						
Tailoring school uniforms	Principal economic activity	\$274	\$354	\$80	168	0.040
	Secondary economic activity	\$53	\$65	\$12	168	0.496
	Additional income	\$355	\$443	\$88	168	0.013
	Total net annual income	\$681	\$862	\$181	168	0.002
Pastry-making	Principal economic activity	\$485	\$604	\$119	32	0.504
	Secondary economic activity	\$70	\$96	\$26	33	0.474
	Additional income	\$320	\$418	\$98	33	0.224
	Total net annual income	\$885	\$1,129	\$244	32	0.267

Course	Outcome	Mean before training	Mean after training	Change	Sample size	p-value
Automobile mechanic	Principal economic activity	\$470	\$583	\$112	106	0.180
	Secondary economic activity	\$99	\$104	\$4	106	0.918
	Additional income	\$268	\$230	-\$38	107	0.480
	Total net annual income	\$844	\$920	\$76	105	0.440
Cooking	Principal economic activity	\$902	\$644	-\$259	89	0.455
	Secondary economic activity	\$22	\$89	\$68	88	0.149
	Additional income	\$301	\$360	\$60	89	0.228
	Total net annual income	\$1,213	\$1,033	-\$181	88	0.573
Baking	Principal economic activity	\$526	\$538	\$12	81	0.920
	Secondary economic activity	\$114	\$64	-\$50	81	0.386
	Additional income	\$377	\$413	\$36	81	0.511
	Total net annual income	\$1,018	\$1,015	-\$2	81	0.989

Source: Non-formal training survey, 2011–2012.

Table A.7. Services that PILAS participants received

Services	Number of participants still in the process of receiving this service	Number of participants who had finished receiving this service	Sample size
Identified and selected as a PILAS participant	1	149	150
Received employment advice or found employment with existing organization	22	60	82
Received advice for self-employment or found self-employment	18	48	66

Source: Non-Formal Training Survey, 2011–2012 (rounds 5–7).

Table A.8. Changes in employment and income among PILAS non-participants, rounds 5–7

Outcome	Before training	After training	Change	Sample size	<i>p</i> -value
Employed (%)	37	63	26	719	0.000
Self-employed (%)	20	32	12	719	0.000
Salaried employed (%)	11	22	11	719	0.000
Other employed (%)	6	9	3	719	0.003
Net income from principal activity	\$387	\$541	\$154	692	0.000
Net income from secondary activity	\$46	\$77	\$31	711	0.018
Additional income	\$261	\$353	\$92	714	0.000
Total net income	\$694	\$966	\$273	681	0.000

Source: Non-formal skills survey, 2011–2012 (rounds 5–7).

Note: The change presented in the table may not be equal to the difference between before and after results due to rounding.

Round 8 was excluded from analysis because PILAS did not serve them due to compact closeout.

The *p*-value on a chi-squared test of the difference between the distribution of employment outcomes before and after the Sub-Activity is 0.000.

Table A.9. Qualitative assessments of participants who had completed the non-formal training

Question		Percent yes	Sample size
As a result of the courses received, did you start your own business or begin work that earned an income?		28	1,160
For what type of economic activity did you use this course?	Permanent employment	1	1,160
	Temporary employment	11	1,160
	My own business	13	1,160
	None of the above	72	1,160
	Other	3	1,160
How did you find your employment? ^a	Contacted employment offices	1	747
	Negotiated directly with businesses	4	747
	Negotiated with farms	2	747
	Negotiated with friends, relatives	51	747
	Placed an advertisement or responded to advertisements in newspapers	1	747
	Looked for land or a building to establish my own business	1	747
	Negotiated to obtain financial resources and establish my own business	9	747
	Participated in PILAS services	1	747
	Continued to work in a family business	24	747
	Other	7	747
Rating of course characteristics ^a	The course overall	4.45	1,160
	The firm that offered the course	4.43	1,157
	The instructor	4.56	1,160
	Training logistics (location, materials, equipment, tools)	4.35	1,158
	Training content	4.40	1,160
	Course schedule	4.30	1,160
Most useful characteristics of the course ^b	Knowledge gained	76	1,160
	Improved communications skills	46	1,160
	Learning a specific new skill	46	1,160
	Receiving a training certificate	12	1,160
	Putting my knowledge to work in community projects	16	1,160
	Other	2	1,160
Characteristics that most needed improvement ^b	Improved explanation of specific topics	13	1,160
	More practice	57	1,160
	More time for training	64	1,160
	Better materials and equipment for training	22	1,160
	Other	3	1,160

Source: Non-formal training survey, 2011–2012 (all rounds).

^aThis question was asked only of those who were employed.

^aRatings are on a scale from 1 to 5, where 1 represents "very bad" and 5 represents "very good."

^bRespondents were asked to choose two characteristics from this list.

Table A.10. Changes in average employment and income in the Northern Zone of El Salvador, by year, 2008–2012

	2009	2010	2011	2012	2013*
Employment					
Rate	92.3%	93.6%	93.5%	93.6%	93.7%
Change (percentage points)	-1.6%	1.3%	-0.1%	0.1%	0.1%
Monthly household income (Current USD)					
Level	\$384	\$381	\$387	\$404	\$416
Change (percentage points)	-2.3%	-0.6%	1.6%	4.3%	3.0%

Source: Employment and monthly household income data for 2008-2012 are from a sample of households from the Northern Zone that participated in the Encuesta de Hogares de Propósitos Múltiples, DIGESTYC.

*2013 employment and income data for 2013 were not available at the time this report was written. Income in 2013 is estimated by applying the 2013 nation GDP growth rate to 2012 household income. The employment growth rate for 2012 was used as a proxy for growth in employment in 2013.

Table A.11. Changes in average employment and income in the Northern Zone (NZ) of El Salvador during time periods corresponding to each survey round

Survey round	Average training start date	Average survey date	Change in employment rate (percentage points, NZ)	Change in average income (percent, NZ)
Round 1	Sept. 2009	May 2011	0.66%	-0.71%
Round 2	April 2010	Aug. 2011	0.83%	0.51%
Round 3	June 2010	Oct. 2011	0.60%	0.96%
Round 4	Sept. 2010	Jan. 2012	0.32%	2.34%
Round 5	Jan. 2011	May 2012	-0.07%	2.46%
Round 6	March 2011	May 2012	-0.03%	2.90%
Round 7	Aug. 2011	Feb. 2013	0.07%	5.30%
Round 8	Jan. 2012	May 2013	0.12%	5.16%

Source: Changes in employment rate and income are estimated for the time period between the average training start date and the average survey date, which correspond to the “before” and “after” time periods for each round. Changes are calculated using weighted averages of the change rates for the years that each time period includes.

Table A.12. Additional Regression Analysis

	Employment		Self-Employment		Salaried Employment		Total Net Income	
	No characteristics	With characteristics	No characteristics	With characteristics	No characteristics	With characteristics	No characteristics	With characteristics
Round 2	0.15***	0.16***	0.12***	0.14***	-0.01	-0.05		
Round 3	0.11***	0.11***	0.10***	0.12***	0.01	-0.03	171.31	119.27
Round 4	0.11***	0.10***	0.08**	0.08***	-0.02	-0.03	149.89	73.69
Round 5	0.14***	0.15***	0.08**	0.08**	0.03	0.02	92.27	78.12
Round 6	0.16***	0.15***	0.12***	0.12***	0.01	-0.01	41.59	1.00
Round 8	-0.07	-0.04	0.00	0.04	-0.01	-0.04	-350.87**	-327.57
Female		0.08***		0.11***		-0.08***		-17.30
Age 17-35		0.10***		-0.02		0.10***		-105.07
Urban		0.03		-0.01		0.04*		163.28
PILAS		-0.01		0.00		0.00		78.59
More than 1 course		0.07***		0.04*		0.02		214.28
Constant	0.17***	0.03***	0.05**	-0.02	0.11	0.09***	254.40	265.74

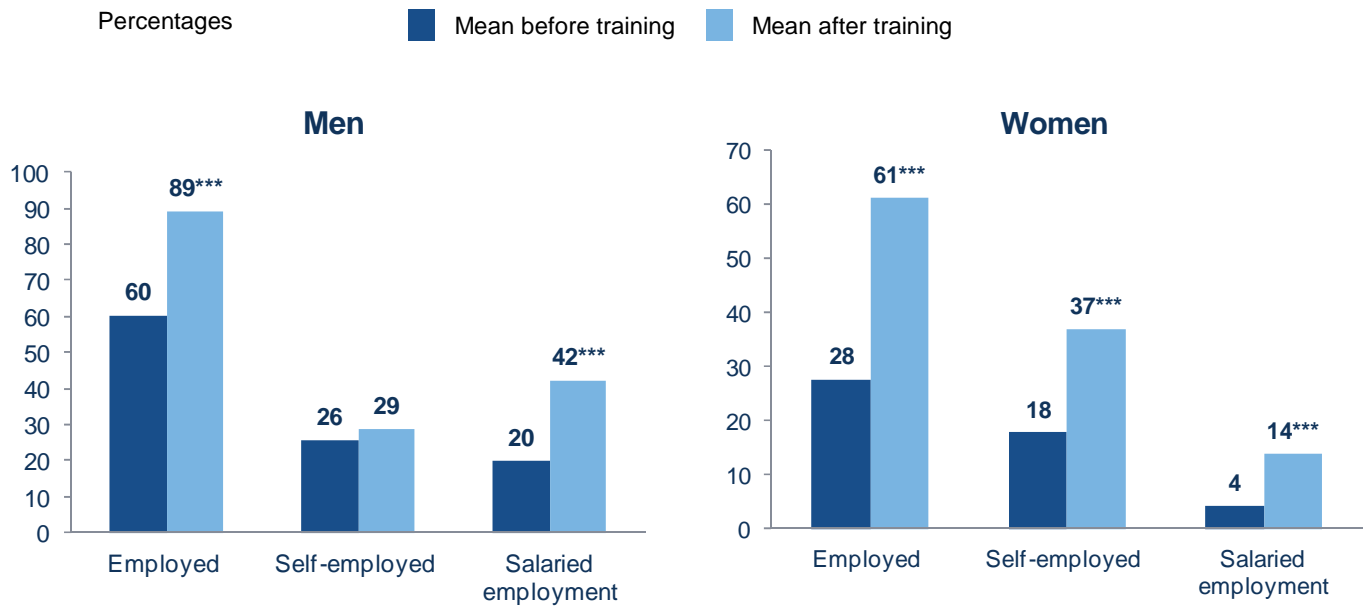
Note: The table shows the coefficients of a regression where the shown indicator (employment, self-employment, salaried employment, and income) was regressed on dummies for each round but round 7, the omitted category. The first panel for each indicator, shows results where no other characteristics were included in the regressions. The second panel shows results where regressions included individual characteristics.

*** The coefficient was significant at the 0.01 level

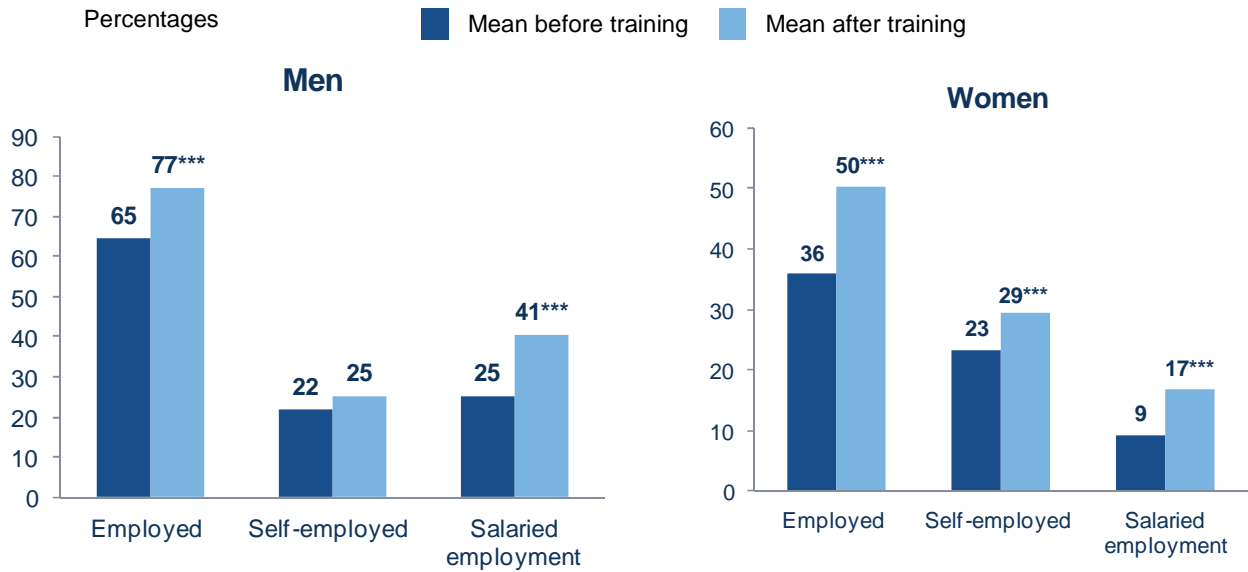
** The coefficient was significant at the 0.05 level

Figure A.1. Changes in employment by gender, rounds 5–8

Panel A: rounds 5–6



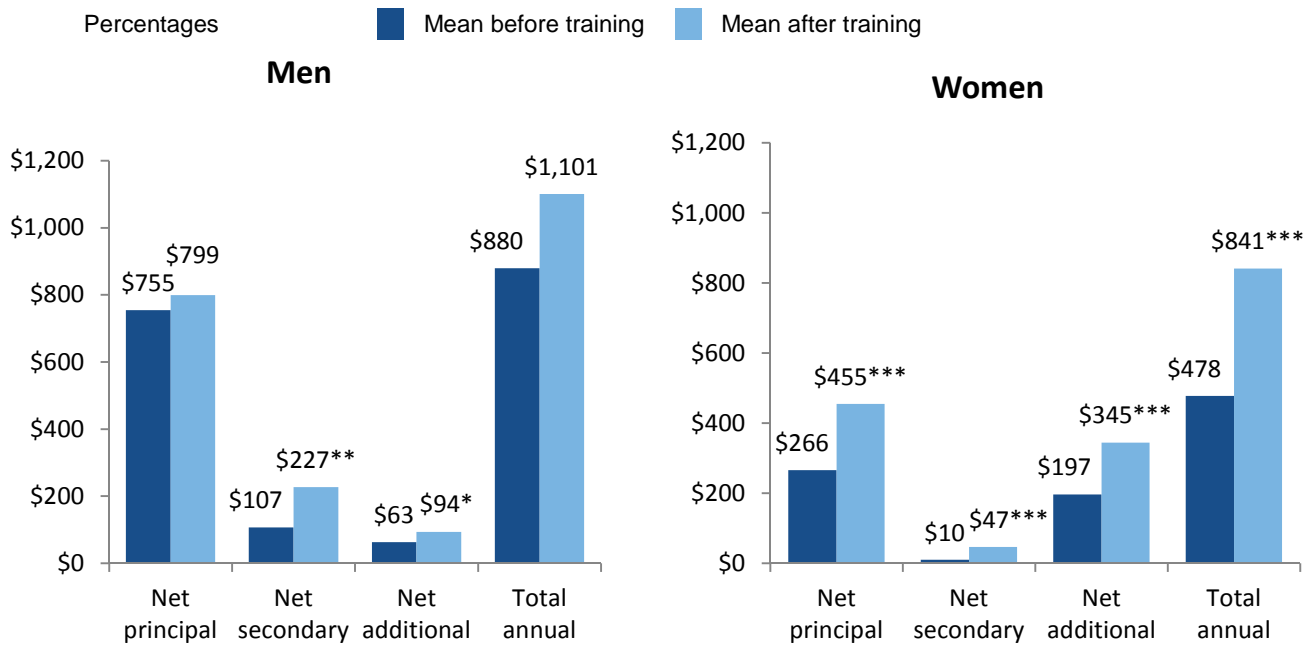
Panel B: rounds 7–8



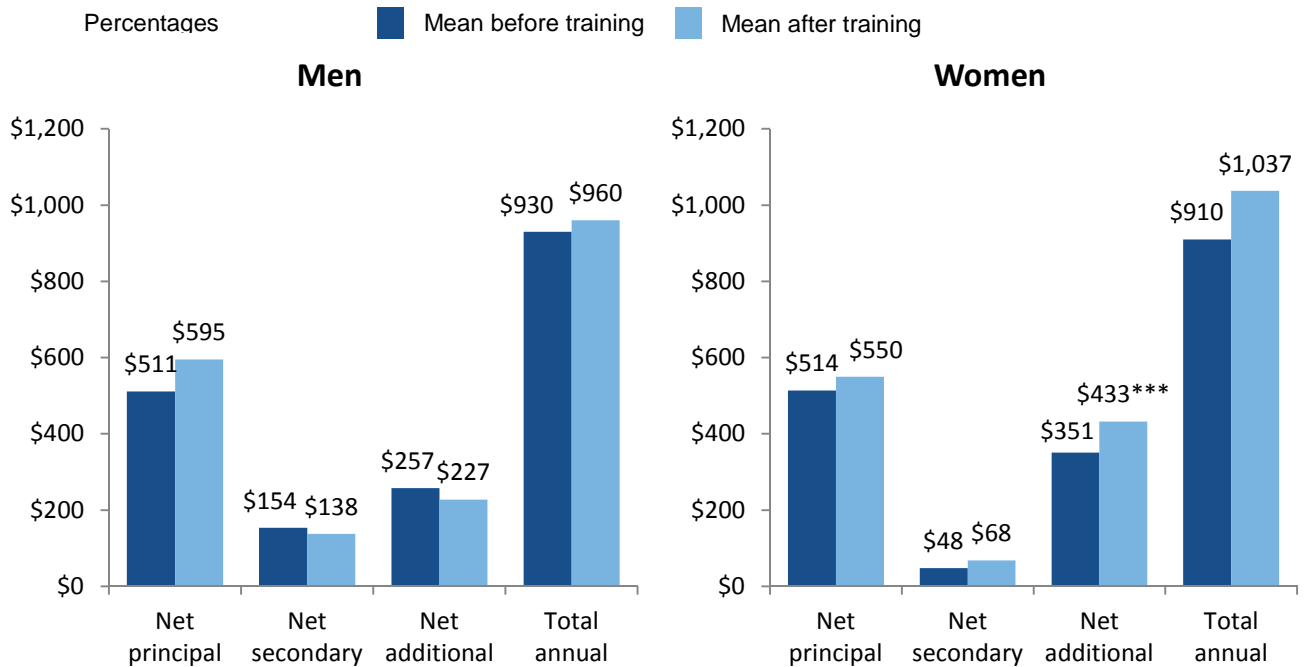
***/**/* Difference between “before training” and “after training” means are statistically significant at the .01/.05/.10 level. The *p*-value on a chi-squared test of the difference between the distribution of employment outcomes before and after the Sub-Activity is 0.000 for men and women in all four rounds.

Figure A.2. Changes in income by gender, rounds 5–8

Panel A: rounds 5–6



Panel B: rounds 7–8

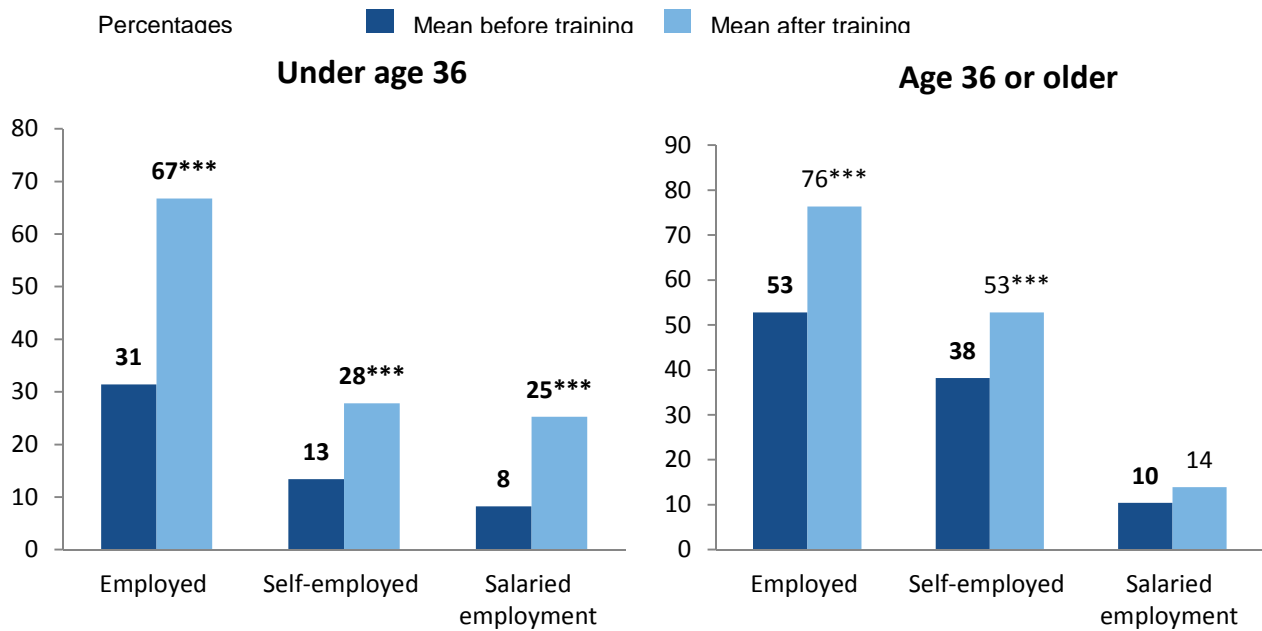


***/**/* Difference between “before training” and “after training” means are statistically significant at the .01/.05/.10 level.

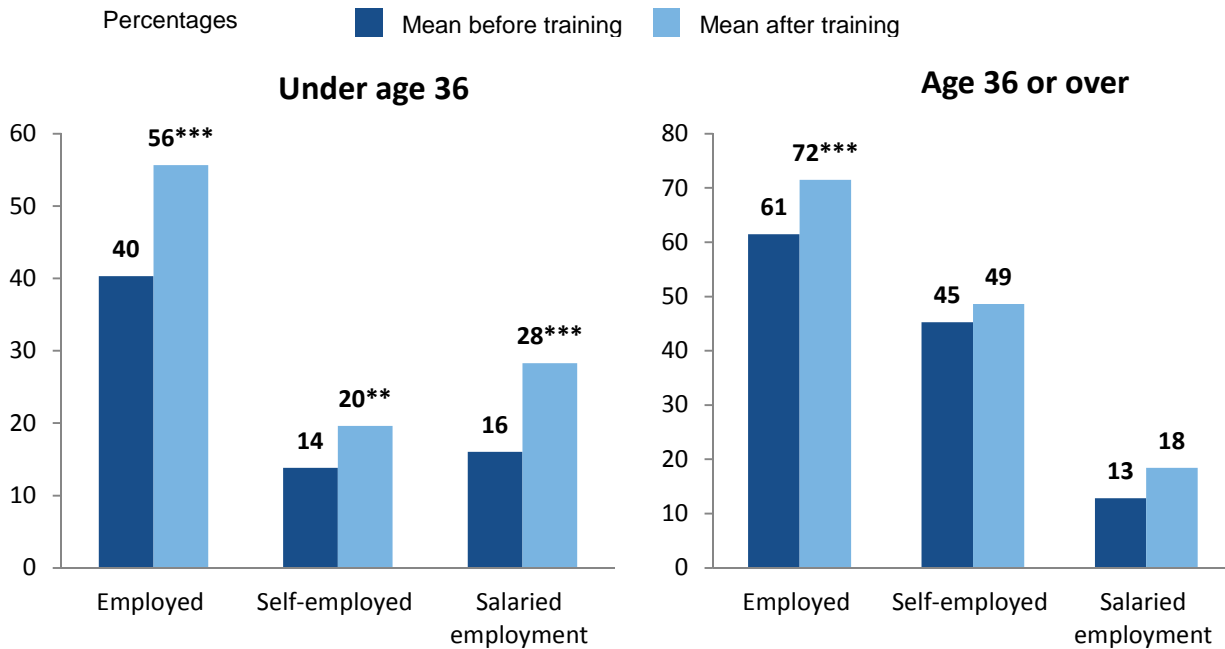
The difference between the pre-post changes in outcomes for men and women was significant for the following outcomes and rounds: in rounds 5 and 6, net secondary income (at the 0.05 level).

Figure A.3. Changes in employment by age, rounds 5–8

Panel A: rounds 5–6



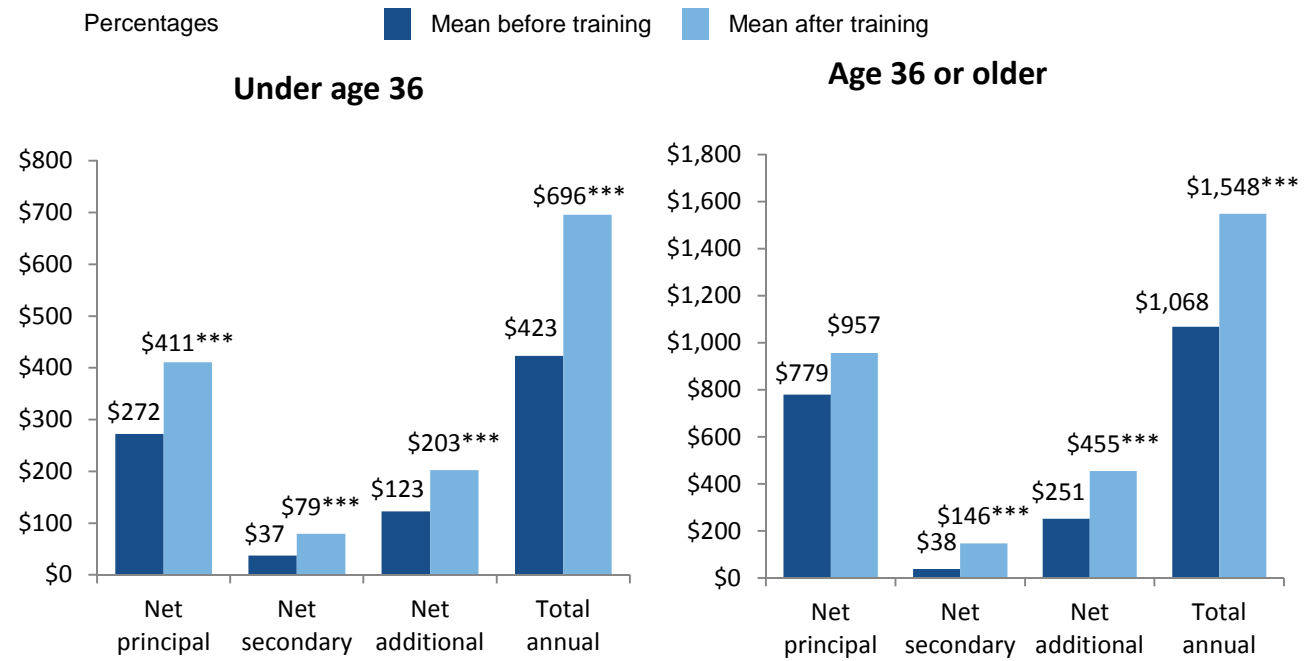
Panel B: rounds 7–8



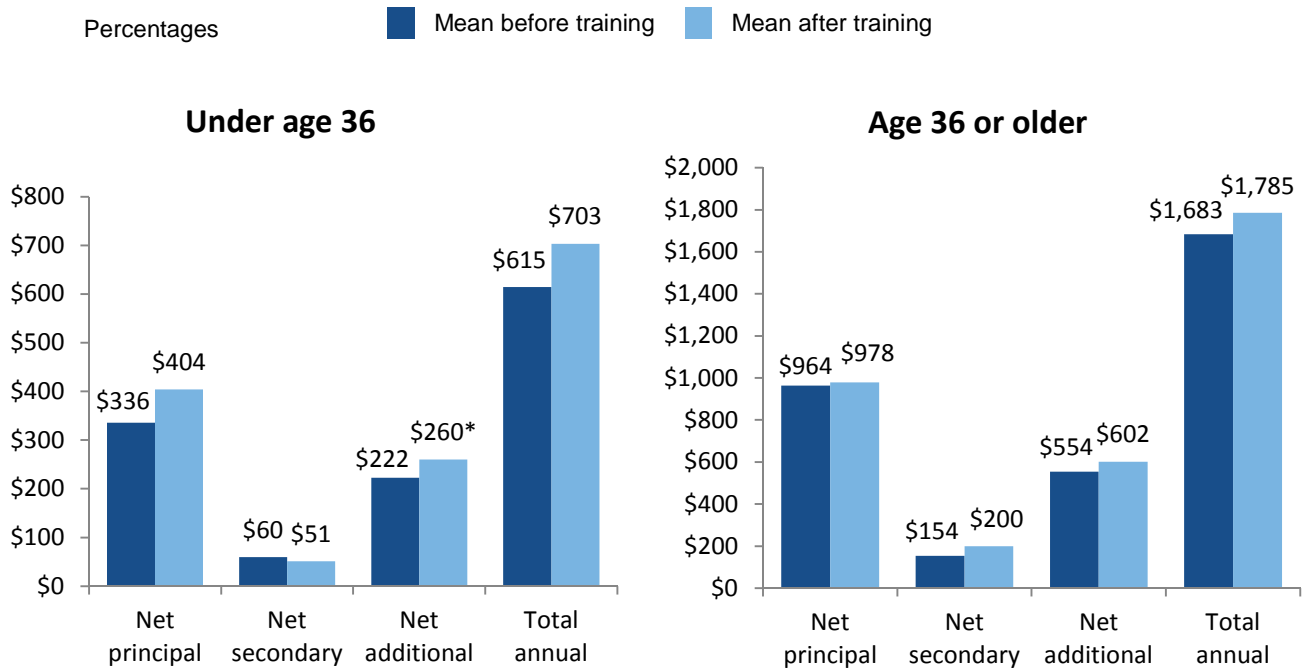
***/**/* Difference between “before training” and “after training” means are statistically significant at the .01/.05/.10 level. The *p*-value on a chi-squared test of the difference between the distribution of employment outcomes before and after the Sub-Activity is 0.000 for younger participants in all rounds and for older participants in rounds 5 and 6. For older participants in rounds 7 and 8, the *p*-value is 0.173.

Figure A.4. Changes in income by age, rounds 5–8

Panel A: rounds 5–6

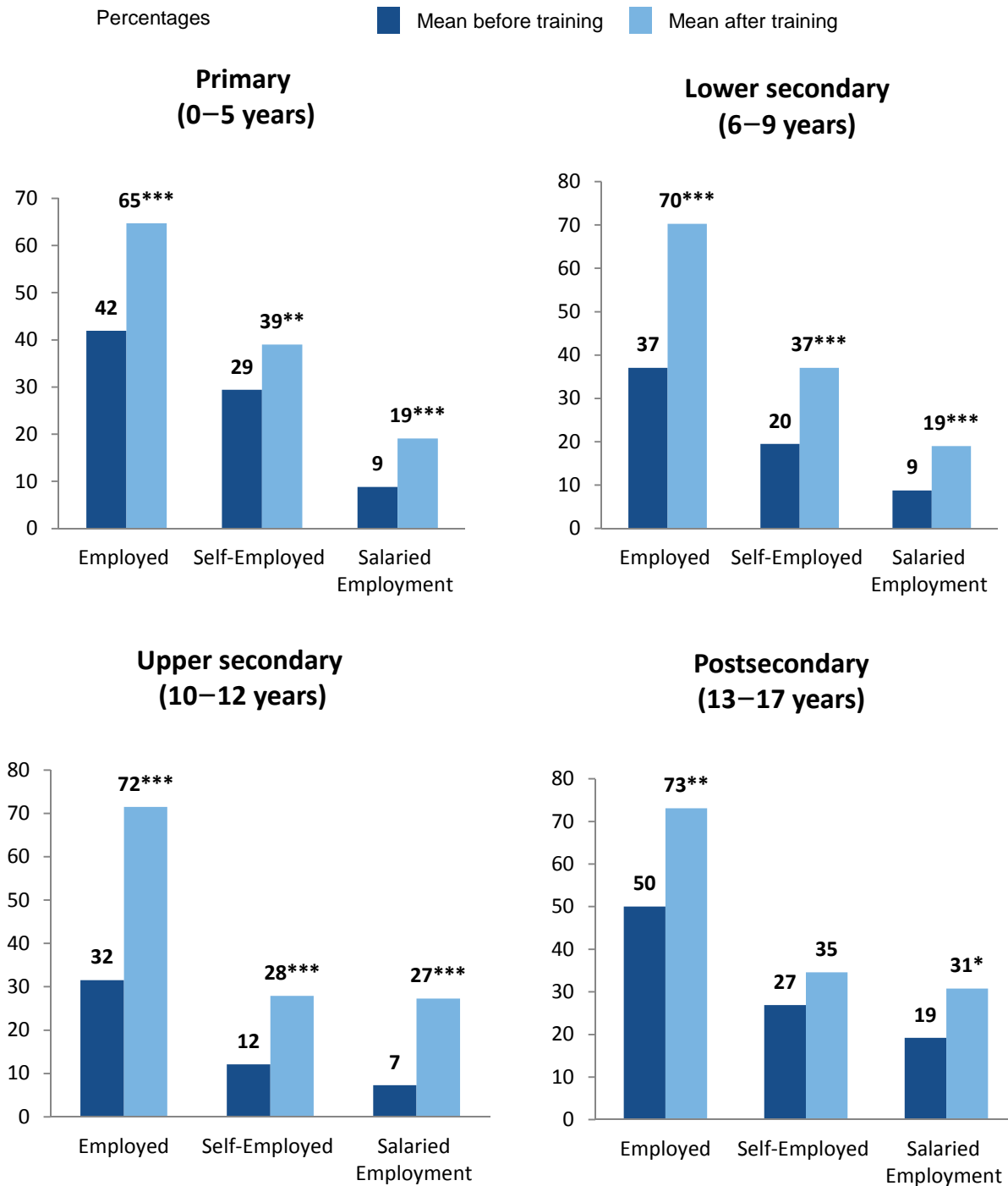


Panel B: rounds 7–8



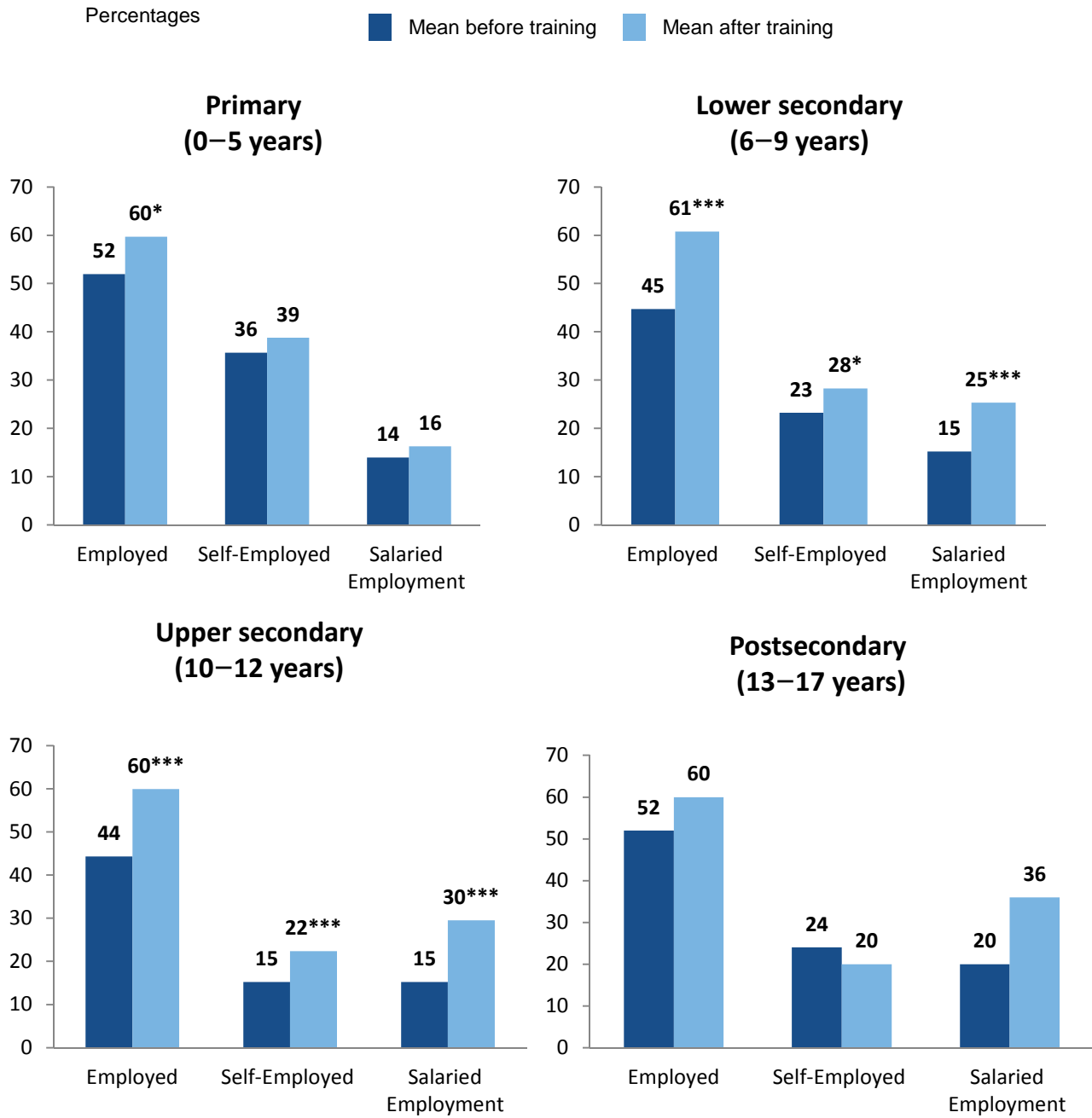
***/**/* Difference between “before training” and “after training” means are statistically significant at the .01/.05/.10 level. There were no significant differences between the pre-post changes in outcomes for participants under age 36 and participants age 36 or older in both rounds.

Figure A.5. Changes in employment by level of education, rounds 5–8
Panel A: rounds 5–6



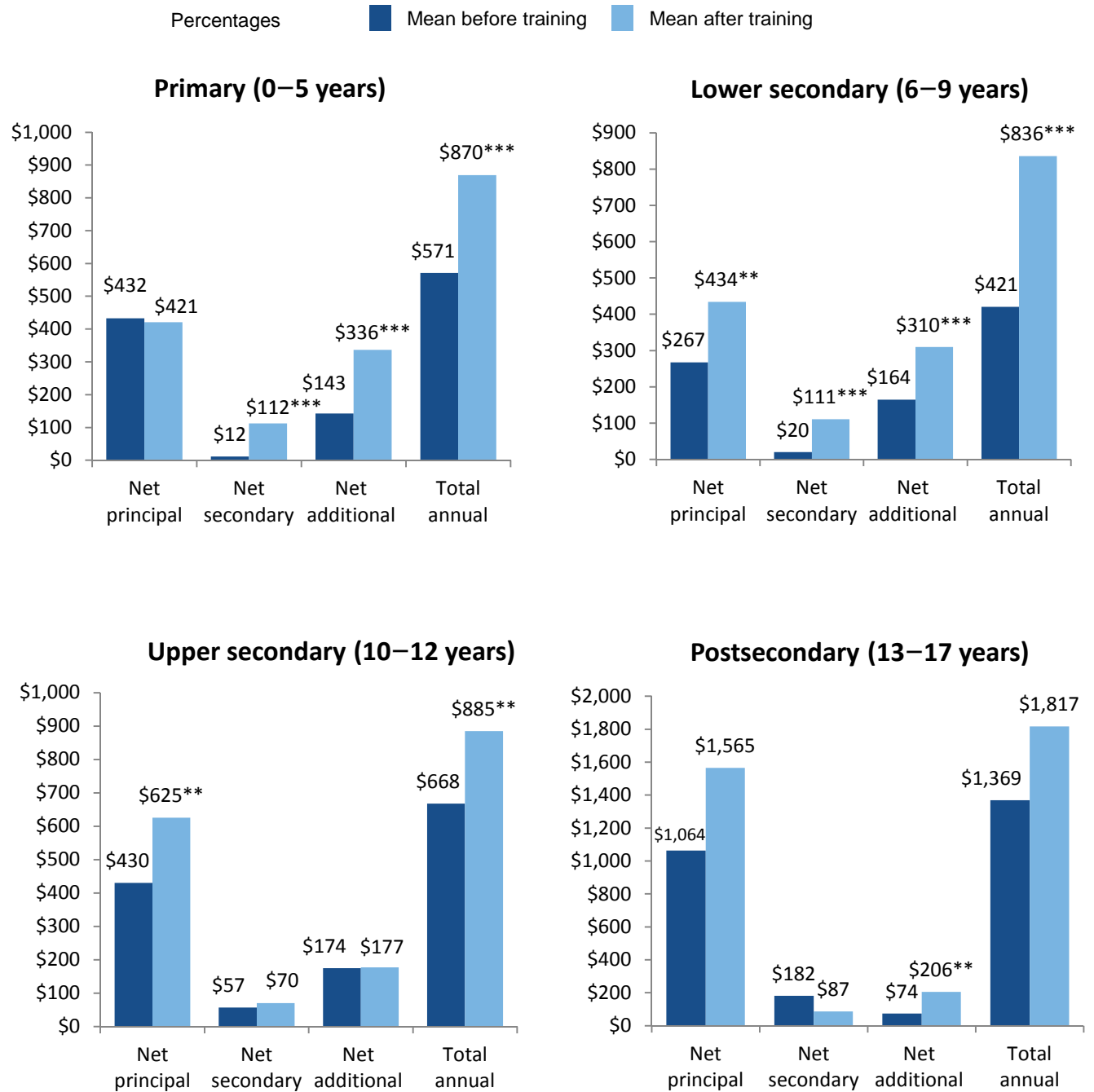
***/**/* Difference between “before training” and “after training” means are statistically significant at the .01/.05/.10 level. The p-value on a chi-squared test of the difference between the distribution of employment outcomes before and after the Sub-Activity is 0.001 for primary, 0.000 for lower and upper secondary and 0.380 for postsecondary participants.

Figure A.5 (continued)
Panel B: rounds 7–8



***/**/* Difference between “before training” and “after training” means are statistically significant at the .01/.05/.10 level. The p-value on a chi-squared test of the difference between the distribution of employment outcomes before and after the Sub-Activity is 0.517 for primary, 0.003 for lower secondary, 0.00 for upper secondary and 0.626 for postsecondary participants.

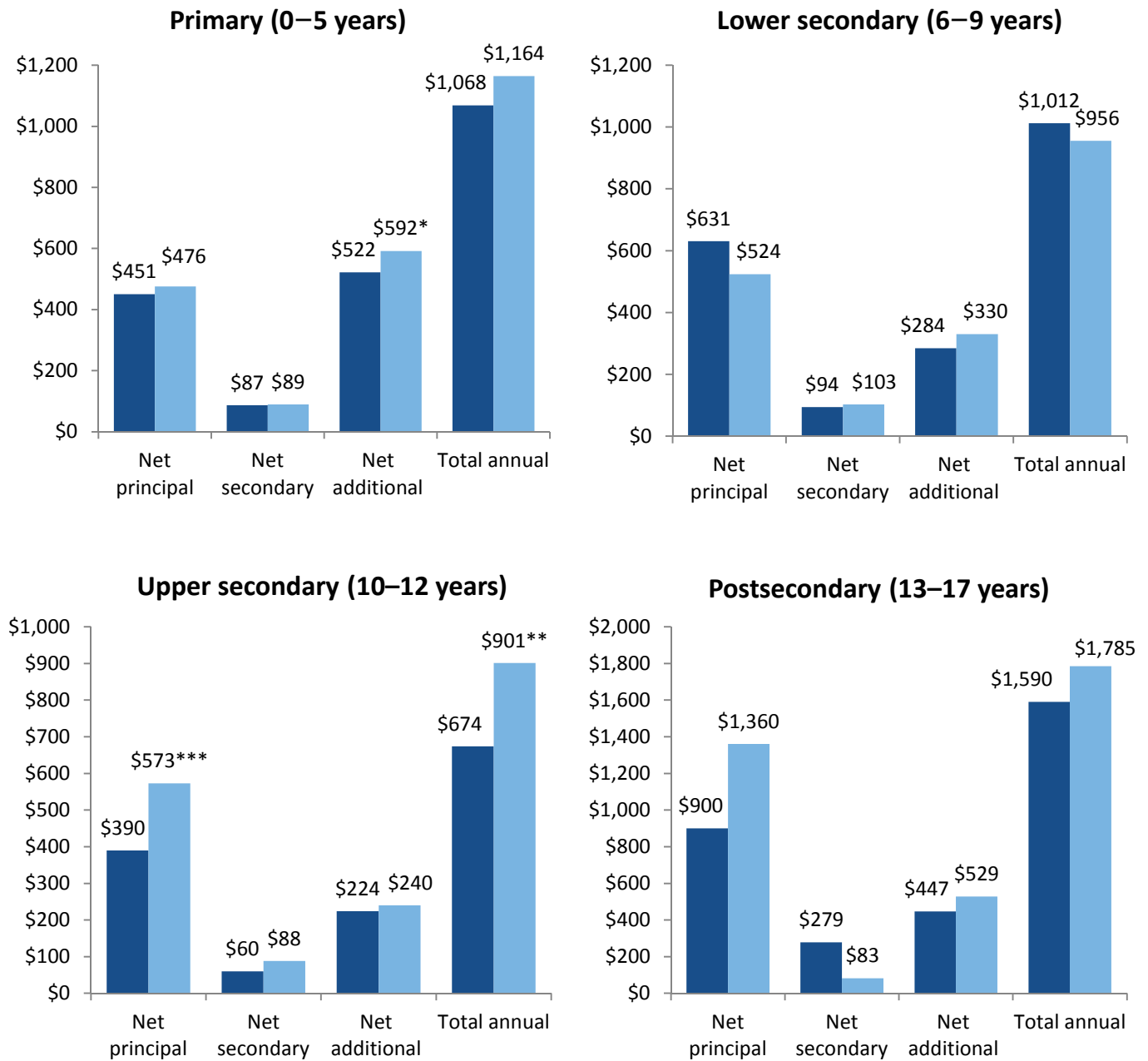
Figure A.6. Changes in income by level of education, rounds 5–8
Panel A: rounds 5–6



***/**/* Difference between “before training” and “after training” means are statistically significant at the .01/.05/.10 level. We compared differences in pre-post changes in outcomes for the subgroups at each education level against the subgroup with primary education. Compared to the subgroup with primary education, the difference in pre-post changes was significant for the following outcomes: net secondary income (at the 0.05 level) and net additional income (at the 0.05 level) for participants with upper secondary education; net secondary income (at the 0.05 level) for participants with postsecondary education.

Panel B: rounds 7–8 (continued)

Percentages ■ Mean before training ■ Mean after training



***/**/* Difference between “before training” and “after training” means are statistically significant at the .01/.05/.10 level. We compared differences in pre-post changes in outcomes for the subgroups at each education level against the subgroup having primary education. Compared to the subgroup with primary education, the difference in pre-post changes was significant for the following outcomes: net secondary income (at the 0.1 level) for participants with postsecondary education.

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