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**MEMORANDUM**

**TO:** Rebecca Goldsmith and Lola Hermosillo

**FROM:** Larissa Campuzano, Elena Blebea, Randall Blair,  
Seth Morgan and Carolyn Chuong

**SUBJECT:** Performance Evaluation of the Non-Formal Skills  
Development Sub-Activity: Interim Results, 2009 to 2010.

**DATE:** 6/3/2013

ESVED-038-rev

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**Executive Summary**

This memorandum presents interim findings regarding the potential effect of FOMILENIO's Non-Formal Skills Development Sub-Activity on participants' employment rates and income. In Section A, we describe the Non-Formal Skills Development Sub-Activity and a complementary labor insertion program, Plan de Inserción Laboral y Autoempleo Sostenible (PILAS). In Section B, we describe the design used to evaluate these programs' potential effects, present the evaluation's outcome measures and data sources, and describe the study sample. In Section C, we present and discuss changes in program participants' employment rates and income. In Section D, we summarize PILAS implementation and analyze key changes in outcomes among PILAS participants during the study period. In Section E, we summarize the results and discuss study limitations.

*Key Findings*

To estimate the potential effect of the Non-Formal Skills Development Sub-Activity, we compared participants' labor market and economic outcomes before training courses to their outcomes approximately one year after training courses. 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.

MEMO TO: Rebecca Goldsmith and Lola Hermosillo

FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong

DATE: 6/3/2013

PAGE: 2

- 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 are associated with the largest income increases, followed by baking and bricklaying courses.
- We find statistically significant and positive changes in employment rates for men and women, but self-employment increased more among women and salaried employment increased more among men. However, men and women experienced similar income increases following training.
- Changes in employment rates and labor income differed by level of education. Although we find 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 following training. Similar to general findings for all participants in the Non-Formal Skills Development Sub-Activity, PILAS participants experienced an increase in principal, secondary, additional, and total income following training.

### *Interpretation of Findings*

Our general finding—that participants were more likely to report being employed and earning higher incomes after participation in the non-formal skills program—suggests that the program had a positive effect. However, other factors could have also affected participants' pre-post changes in employment and income. For example, general economic conditions in the Northern Zone likely had a large substantial impact on these outcomes, and we cannot separate the effect of these changing conditions from the effect of the program. Another limitation is that the survey did not ask the same questions for pre- and post-training time periods. Hence, the pre-post changes could also reflect differences in the way these questions were phrased.

Although we cannot attribute the full change in participants' employment and income to the non-formal skills training program, our additional analyses suggest that the program did contribute to these improved outcomes, at least for a portion of participants. In particular, a subset of unemployed individuals who took food-related courses reported finding subsequent work as bakers and cooks, and reported large increases in their primary income as a result of this work. These findings suggest that food preparation courses may have helped these individuals transition to new jobs in the food industry, thus substantially improving their annual income.

MEMO TO: Rebecca Goldsmith and Lola Hermsillo  
FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
DATE: 6/3/2013  
PAGE: 3

## **A. BACKGROUND**

### **1. Description of the Non-Formal Skills Sub-Activity and PILAS**

The Human Development Project was one of the three large-scale projects funded by the 2006 compact between the Millennium Challenge Corporation (MCC) and the Government of El Salvador. It contained the following two components: (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 compact period spanned from October 2007 to September 2012.

The Non-Formal Skills Development Sub-Activity was one of the three sub-activities of the Education and Training Activity. The 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. According to the MCC-El Salvador compact, these populations included women, at-risk youth, and the poor. These groups may have been excluded from participation in formal education services and productive activities for many reasons, including a limited availability of formal education and technical programs, a lack of employment opportunities, a lack of mechanisms to connect potential workers to job opportunities, domestic and international migration, inadequate educational credentials for gaining meaningful employment, and the need to care for families.

The Non-Formal Skills Development Sub-Activity funded short-term courses throughout the Northern Zone in common trades such as baking, bricklaying, and electrical installations. The short-term goal of the non-formal skills program was to increase the education and skill levels of at-risk populations in the Northern Zone.<sup>1</sup> The medium-term goals were to decrease economic barriers to labor force entry, while increasing the personal income, labor market participation, and self-employment rates of vulnerable populations. Lastly, the program's long-term goal was to spur economic growth and reduce poverty in the target area.

The Salvadoran government agency Instituto Salvadoreño de Formación Profesional (INSAFORP) was designated as the principal implementing entity for the Non-Formal Skill Development Sub-Activity. In addition, the Millennium Fund (known as FOMILENIO in Spanish) was established as 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 (known as CIDE for its initials in French) was the primary entity contracted to provide technical support for the sub-activity,

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<sup>1</sup> The terms sub-activity and program will be used interchangeably through the rest of the document.

MEMO TO: Rebecca Goldsmith and Lola Hermsillo  
FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
DATE: 6/3/2013  
PAGE: 4

including assessing training needs in the 94 municipalities in the Northern Zone, designing the training plan and courses, helping monitor program implementation, contacting local organizations to facilitate participants' employment, and conducting surveys to evaluate the program. While many organizations were involved in overseeing general program implementation, 12 contractors hired by FOMILENIO conducted all training courses during the program's implementation period.

Beginning in 2010, FOMILENIO and MCC began formulating a labor market insertion program to complement the Non-Formal Skills Development Sub-Activity: the Plan de Inserción Laboral y Autoempleo Sostenible (PILAS). The objective of PILAS was to support productive employment for individuals in the Northern Zone who benefited from FOMILENIO's Human Development Program, including non-formal skills workshops, scholarships, enhanced technical middle schools, and a new post-secondary technical institute in Chalatenango. Established in early 2011, PILAS had a total budget of about \$458,000 (USD), with about \$187,000 (USD) allocated to participants of the Non-Formal Skills Development Sub-Activity. CIDE was charged with monitoring the execution of PILAS, and three service providers were hired to implement the program. Two of these providers focused on non-formal skills training participants: Asociación AGAPE de El Salvador served the Chalatenango region and ADEL focused on Morazán and the Northern Zone of La Unión and San Miguel. Because FOMILENIO designed PILAS to be offered to all individuals who participated in non-formal skills courses, we summarize PILAS implementation and assess the program's possible effect on employment and income outcomes in this memo. However, as we will explain later, not all participants participated in PILAS.

## **2. Implementation of the Non-Formal Skills Sub-Activity and PILAS**

The non-formal skills program was modeled on the Programa Habilitación para el Trabajo (HÁBIL), implemented by INSAFORP prior to the compact period. Founded in 1996, the HÁBIL program provided work rehabilitation and training services throughout El Salvador in several subject areas, with a focus on skills demanded by program participants, particularly women. The goal of the non-formal skills activity was to expand the HÁBIL program and provide training in areas with potential for labor market insertion. Another key modification was that the sub-activity would provide 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.

During 2008, CIDE conducted a needs assessment of the Northern Zone and developed an implementation plan for the non-formal skills program.<sup>2</sup> The plan defined the target population

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<sup>2</sup> Entregable 5, Plan de formación profesional a ser desarrollado durante la ejecución del proyecto. CIDE, December 2008.

MEMO TO: Rebecca Goldsmith and Lola Hermosillo  
FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
DATE: 6/3/2013  
PAGE: 5

as the following: female heads of household; non-economically active women and young men (between 17 and 35) regardless of educational level; young women and men between 17 and 24 who completed at least 9<sup>th</sup> grade; and women and men with disabilities. According to stakeholders, some degree of program flexibility was required to accommodate the typical constraints faced by these vulnerable populations. To this end, contractors offered the program on a demand-only basis, with classes scheduled according to participant availability. Furthermore, contractors determined the location of the classes based on participant input. Courses ranged from 180 to 400 hours in duration, but the length of the course (in terms of calendar months) depended on 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 developed by CIDE defined the three types of services that the contractors should provide: (1) Outreach and orientation services, during which the contractors were responsible for contacting potential participants, informing them about the program, and providing them with an orientation on courses that were 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.

CIDE staff initially identified seven economic areas with potential for contracted employment or self-employment: Agriculture, Construction, Industrial Services, Restaurants, Hotels and Tourism, Commerce and Administration, Manufacturing, and 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 courses due to their potential synergies with other programs implemented by FOMILENIO. For example, courses related to highway construction were identified as high-priority due to the construction of a longitudinal highway in the Northern Zone. In addition, courses related to agriculture were initially identified as high-priority because skills in this area would be relevant to the Productive Development Project.<sup>3</sup> To provide training in high-priority areas that did not yet have existing courses, CIDE designed four new courses for the non-formal skills program: Salvadoran Food Preparation, Dairy Product Transformation, Management of Handicraft Microenterprises, and 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,

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<sup>3</sup> Funded by the Millennium Challenge Corporation (MCC) and implemented by El Salvador's Millennium Challenge Account (known as FOMILENIO in Spanish) from 2008 to 2012, the main objective of the Productive Development Project (PDP) was to assist in the development of profitable and sustainable business ventures for poor individuals in El Salvador's Northern Zone.

MEMO TO: Rebecca Goldsmith and Lola Hermsillo  
FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
DATE: 6/3/2013  
PAGE: 6

at least 26 of the 45 courses identified as high-priority were offered at least once during the implementation period.

The Non-Formal Skills Development Sub-Activity began activities in May 2009 and ended in June 2012. The program 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 program based on CIDE's high-priority course recommendations. The activity launched 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 program and identified potential participants. At the program's outset, mayors and potential participants were not familiar with the training program and implementers reported some delays in securing initial stakeholder commitment. As the program became better known in the Northern Zone, however, demand for courses gradually increased.

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 finding suitable firms to administer new training courses. Some high-priority courses were never offered because qualified teachers could not be identified. Second, neither INSAFORP nor the implementers had worked extensively in the Northern Zone prior to the implementation of the program. Service providers had to identify sites for each course and transport all 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. Third, FOMILENIO demanded high-quality training during the general implementation phase. As such, most contractors needed a learning period to improve their instruction techniques during the first few months of implementation. Fourth, contracting requirements limited the hiring of suitable contractors. During the first year of full implementation, FOMILENIO required three offers from potential service providers to select the winning bid; this prevented FOMILENIO from contracting courses in areas in which they had less than three bids. Finally, the contracted firms did not have the capacity 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.

MEMO TO: Rebecca Goldsmith and Lola Hermosillo  
FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
DATE: 6/3/2013  
PAGE: 7

Despite the implementation challenges, the program met its enrollment targets. As of March 2012, 11,192 unique individuals had started non-formal skills courses since early 2009, surpassing the compact target of 8,400 participants.<sup>4</sup> Furthermore, as shown in Table 1, 10,667 of the 11,192 participants who started courses completed them (95 percent completion rate).

**Table 1. Number of Non-Formal Training Participants and Completion Rates, by Date of Course Completion**

Date of Course Completion	Number of Individuals That Began Courses	Number of Individuals That Completed Courses	Completion Rate (%)
May 2009 to March 2010	2,309	2,294	99.4
April 2010 to June 2010	1,103	1,046	94.8
July 2010 to September 2010	911	845	92.8
October 2010 to December 2010	1,351	1,273	94.2
January 2011 to March 2011	1,355	1,238	91.3
April 2011 to June 2011	1,153	1,114	96.6
July 2011 to December 2011	2,151	2,037	94.7
January 2012 to March 2012	859	820	95.5
<b>Total</b>	<b>11,192</b>	<b>10,667</b>	<b>95.3</b>

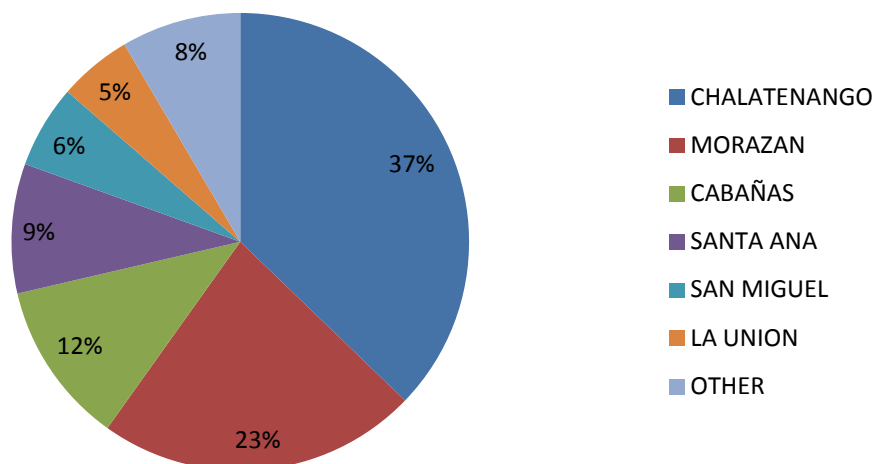
Source: Sistema de Información y Registro de Beneficiarios (SIREB), May 2012.

As of March 2012, contractors had completed 852 courses under the Non-Formal Skills Development Sub-Activity in the 9 departments (and 94 municipalities) of the Northern Zone. These courses were concentrated in Chalatenango and Morazán, followed by Cabañas and Santa Ana (Figure 1).

<sup>4</sup> The target of 8,400 was revised downward from 13,000 beneficiaries mentioned in the compact.

MEMO TO: Rebecca Goldsmith and Lola Hermosillo  
 FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
 DATE: 6/3/2013  
 PAGE: 8

**Figure 1. Distribution Non-Formal Skills Courses, by Department**



Source: Sistema de Información y Registro de Beneficiarios (SIREB), May 2012.

Sample Size: 13, 073 participants that started a course as of May 2012.

Some of the most popular courses—as defined by number of participants and number of times the courses were offered—were baking, cooking, residential electrical installations, pastry-making, bricklaying, plumbing, auto repair, and agriculture and livestock. The courses generally had an uneven gender distribution. Table 2 shows the distribution of men and women in the five courses with the highest number of participants. Women represented over 90 percent of participants in cooking related courses (baking, cooking, and pastry making), whereas men represented over 90 percent of participants in manual skills courses (residential electrical installations and bricklaying).

**Table 2. Participation in Five Most Popular Non-Formal Training Courses, by Gender**

Course Topic	Number of Courses Offered	Number of Participants	Women (%)	Men (%)
Baking	98	1,635	91	9
Cooking	82	1,391	92	8
Residential Electrical Installations	66	1,202	3	97
Pastry-Making	60	1,202	94	6
Bricklaying	59	1,092	3	97

Source: Sistema de Información y Registro de Beneficiarios (SIREB), May 2012.



MEMO TO: Rebecca Goldsmith and Lola Hermosillo  
FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
DATE: 6/3/2013  
PAGE: 9

### **3. PILAS Implementation**

The PILAS program began implementation in July of 2011 and operated for approximately one year. To identify individuals that had participated in FOMILENIO programs and offer them PILAS services, implementers contacted mayor's offices and organized meetings with participants of the non-formal skills courses. During the meetings, implementers explained the program and enrolled eligible participants. The PILAS program had three stages: First, a selection stage, in which implementers worked with participants to assess their potential to become either a paid employee of an organization (dependently employed) or self-employed. This stage took around one month, on average. Only about half of initial enrollees finished this first stage. The second and third stages differed depending on the group in which participants were placed. For participants in the dependent employment group, implementers provided assistance for preparing participants' paperwork and helping beneficiaries start their job search. In the third phase, implementers attempted to place these participants in the labor force. For participants in the self-employment group, implementers provided initial training on business development during the second stage and provided technical assistance to develop a business plan in the third stage. On average, the second and third stages lasted between four and five months.

## **B. RESEARCH METHODS**

### **1. Evaluation Design**

To examine the effects of the Non-Formal Skills Development Sub-Activity on employment rates and personal income, we used a *pre-post survey design*. With this design, we compare outcomes of enrolled participants before the start of the program with the outcomes of the same individuals approximately one year after the end of the program. All information for this comparison is 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 program, 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 non-formal skills program. In 2011, MCC reconsidered and requested an evaluation, but at that point, the program had already served over 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 program. 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

MEMO TO: Rebecca Goldsmith and Lola Hermsillo  
FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
DATE: 6/3/2013  
PAGE: 10

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.<sup>5</sup>

This design cannot fully attribute before-after differences to the training program because other factors outside of the program—including broader economic developments during the study period—could have also affected participants' outcomes. Although we do not report impact estimates, or estimates that are fully attributable to the program, this analysis can offer valuable insight regarding the following research question:

- What was the change in participants' labor market outcomes and income approximately one year after completing a non-formal skills course?

Our analysis also addresses the following secondary questions:

- Did the changes in participants' labor market outcomes differ by gender or level of education?
- Among the participants that were unemployed before starting and completing the courses, to what extent did they find employment after the course (and in which occupations)?
- Did completion of a non-formal skills course lead participants to switch occupations?
- What were the most common employment transitions (i.e., moving from unemployment to salaried employment) after completing the course? Was self-employment more common than salaried employment?
- Did the change in participants' labor market outcomes vary depending on the type of course they completed?
- Did the change in participants' incomes vary according to the type of employment they found?
- What were the facilitators and barriers to training completion and employment according to the participants?
- What was the effect of PILAS on participants' labor market outcomes and income?

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<sup>5</sup> While we had proposed a regression analysis with adjustments for age, gender, and geographic location in the design memorandum, we decided to use unadjusted changes because the regression yielded results that were difficult to interpret.

MEMO TO: Rebecca Goldsmith and Lola Hermsillo  
FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
DATE: 6/3/2013  
PAGE: 11

## 2. Data Sources

From 2011 to 2012, CIDE conducted a survey of non-formal skills training participants, with the goal of doing a follow-up study of the program and obtaining monitoring indicators that could be used to calculate the program's economic rate of return. First, we discuss how the survey was conducted, and then we present key outcome measures.

As explained above, the non-formal skills program served over 11,129 people from May 2009 until March 2012. This study will focus on employment results among participants that completed their first course from May 2009 to December 2010, as this is the population from which the survey was drawn. Table 3 below presents the number of participants that completed courses during this period.<sup>6</sup> A survey of these participants was conducted in four distinct rounds to ensure that all participants were interviewed approximately one year after they completed their first course.<sup>7</sup> As summarized in Table 3, Round 1 data collection targeted participants that were scheduled to complete training courses between May 2009 to March 2010; Round 2 data collection targeted participants that were scheduled to complete courses from April to June 2010; Round 3 data collection targeted participants that were scheduled to complete courses from July to September 2010; and Round 4 data collection targeted participants that were scheduled to complete courses from October to December of 2010. As noted above, participants were interviewed approximately one year after completing training courses, with the exception of Round 1, when participants could have been interviewed more than a year after they completed their first course.

As shown in Table 3, a total 5,458 participants completed non-formal skills courses during the period of interest (according to FOMILENIO's participant database). In order to ensure that survey respondents were somewhat representative of the entire population of participants that completed courses in this period, CIDE's data collection plan set the target number of completed interviews at 2,204. The data collection plan also specified that to be eligible for the survey, participants had to have passed their first course, could not be enrolled in a non-formal skills training course at the time of the survey, and could not have been previously surveyed by CIDE. Data collectors visited participants selected for the survey at their listed place of residence. If participants were not at home, interviewers were instructed to return for a maximum of three visits, each at different times of the day.

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<sup>6</sup> Note that this is the same number of participants from the first four rows of Table 1.

<sup>7</sup> Note that participants were able to take more than one course.

MEMO TO: Rebecca Goldsmith and Lola Hermsillo  
 FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
 DATE: 6/3/2013  
 PAGE: 12

**Table 3. 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 That Completed Courses	Target Number of Completed Interviews
1	May 2009-March 2010	February 2011-October 2011	2,294	687
2	April 2010-June 2010	July 2011-September 2011	1,046	522
3	July 2010-September 2010	September 2011-December 2011	845	500
4	October 2010-December 2010	January 2012-February 2012	1,273	495
<b>Total</b>			<b>5,458</b>	<b>2,204</b>

Source: Sistema de Información y Registro de Beneficiarios (SIREB), May 2012 and CIDE's Plan de Trabajo para el Seguimiento de Personas Beneficiarias de los Cursos de Educación No Formal.

Table 4 illustrates the non-formal skills survey's sample sizes and response rates. CIDE's data collection plan assumed a survey response rate of 92 percent. However, the sample frame, which was constructed from FOMILENIO's participant database, was ultimately determined to be unreliable and out of date, particularly with respect to participants' addresses. As a result, many participants were not located during data collection. To attain the target number of completed interviews, CIDE increased the number of attempted interviews during data collection.<sup>8</sup> As shown in Table 4, CIDE attempted a total of 3,894 interviews and completed 2,193 interviews, which almost met the original target of 2,204 (Table 4). However, the total survey response rate was 56 percent. Without reliable data for all training participants, we cannot determine whether participants that did not complete the survey were systematically different from participants that completed the survey. This raises some concerns regarding the representativeness of the sample of respondents (due to non-response bias).

<sup>8</sup> Personal communication with CIDE staff confirmed that participants had been randomly selected for the survey.

MEMO TO: Rebecca Goldsmith and Lola Hermosillo  
 FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
 DATE: 6/3/2013  
 PAGE: 13

**Table 4. 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
<b>Total</b>	<b>3,894</b>	<b>2,193</b>	<b>56</b>

Sources: SIREB (May 2012) and Non-formal training survey, 2011-2012.

### 3. Outcome Measures

Using data from the non-formal skills survey, we constructed key evaluation outcomes for this analysis. These outcomes fall in two key domains: employment and income. The survey featured questions on both domains at two periods of time: before participants started their first course (pre-intervention) and one year after participants completed their first course (post-intervention). A primary concern with this type of measurement is recall bias, as the survey asked participants about a time period that was over one year prior to the survey date. This prevented us from asking the same level of detail for the pre-intervention period than what we asked for the post-intervention period. Table 5 provides a definition of all outcomes measured in this interim analysis. Table A8 explains measurement issues related to different question phrasing and construction for pre-intervention versus post-intervention.

It is important to note that the non-formal skills survey instrument changed substantially between Round 1 data collection and Round 2 data collection. Unfortunately, surveys conducted during Round 1 data collection do not allow us to determine whether participants were self-employed, salaried, or had another employment arrangement prior to taking the course. In addition, no questions were asked in Round 1 to determine respondents' secondary income, additional income and total income prior to taking the course. For this reason, pre-post differences for total annual income are calculated after excluding Round 1 data. Table A8 provides a description of the indicators not included in round 1.

MEMO TO: Rebecca Goldsmith and Lola Hermsillo  
 FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
 DATE: 6/3/2013  
 PAGE: 14

**Table 5. Definitions of Main Outcomes**

<b>Outcome</b>	<b>Definition</b>
<b>Employment Indicators</b>	
Employed	Pre: Reported working at the time of enrollment in the course Post: Worked last week or soon returning to work at the time of the survey
Self-employed	Pre and Post: Owner, employer, or has their own business
Salaried employment	Pre and Post: Reported a permanent or temporary salary
Other employment	Pre and Post: Employment other than self-employment or salaried employment. This could include a member of a cooperative, unpaid work with a relative, an apprenticeship, domestic services, or other.
Hours Worked Weekly	Pre and Post: Number of hours worked per week
Full-Time Equivalent Employment	A full-time equivalent (FTE) job transforms the number of hours and days worked into what is considered a full time job: 8 hours of labor per day for 250 days in a year. For example, an FTE of 0.5 is a half-time job.
<b>Income Indicators</b>	
Total Net Annual Income from Principal Economic Activity	Pre and Post: Total net annual income (Gross income – investment costs) from principal economic activity (in USD)
Total Net Annual Income from Secondary Economic Activity	Pre and Post: Total net annual income (Gross income – costs) from an economic activity outside of the aforementioned principal economic activity (in USD)
Additional Total Annual Income	Pre and Post: 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	Pre and Post: Total net annual income (Gross income – costs) from primary, secondary, and additional economic activities (in USD)

#### **4. Description of the Study Sample**

The sample used for this analysis consists of 2,193 participants that responded to the non-formal skills survey (see Table 4). Table 6 reports the characteristic of the sample. About 60 percent of the survey respondents were female. Respondents' average age was 31, and about 40 percent reported living in urban areas in the Northern Zone. Fifty-three percent of respondents had children—1.4 dependents, on average—and respondents reported completing an average of

MEMO TO: Rebecca Goldsmith and Lola Hermsillo  
 FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
 DATE: 6/3/2013  
 PAGE: 15

eight years of education. More than 50 percent of the sample reported living in Chalatenango and 20 percent reported residing in Morazán. More than 25 percent of the respondents reported taking more than one course offered by the program, and about 12 percent stated that they had participated in the PILAS program.<sup>9</sup>

**Table 6. Baseline Characteristics of Survey Respondents**

Characteristics	Mean	Standard Deviation
Age (years)	30.7	12.1
Female (%)	61	49
Urban (%)	40	49
Has children (%)	53	50
Number of economic dependents	1.4	1.8
Taken more than one course (%)	26	44
Years of education	8.3	3.7
Work experience (years)	8.3	9.9
Currently studying (%)	12	32
PILAS participant (%)	12	32
Unemployed female between 17 and 35 (%)	27	44
Unemployed male between 17 and 35 (%)	11	32
Female between 17 and 24 with at least 9 <sup>th</sup> grade (%)	14	34
Male between 17 and 24 with at least 9 <sup>th</sup> grade (%)	12	33
Female with at least one dependent (%)	32	47

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

Note: Sample size is 2,193 for all variables except years of education (N=2,191).

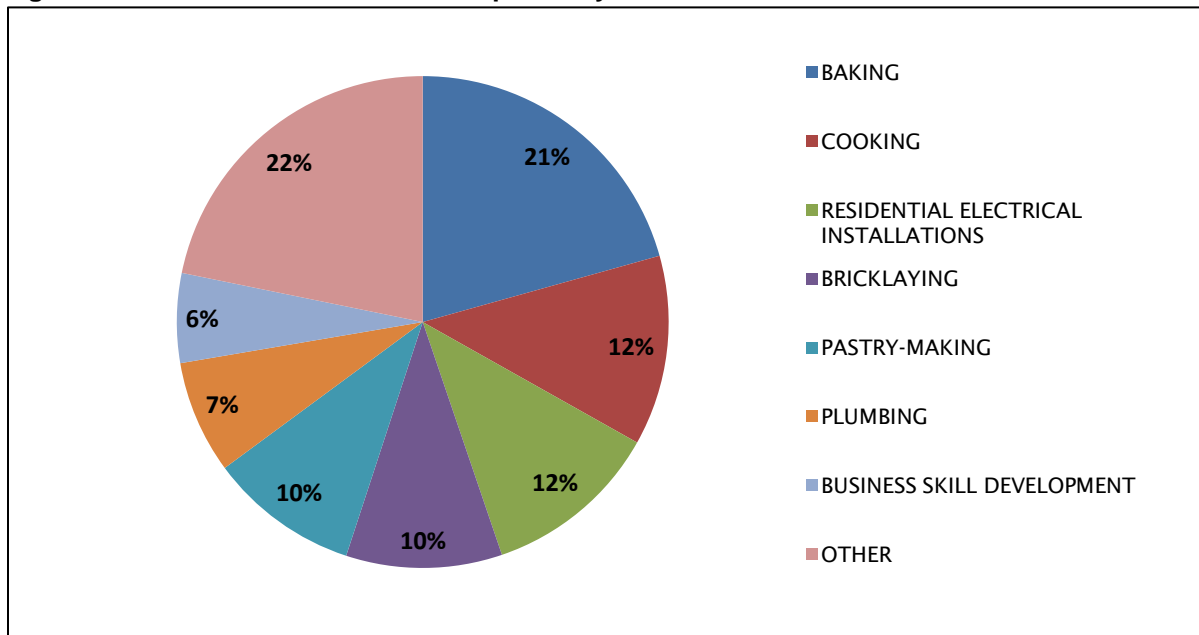
<sup>9</sup> For a summary of the baseline characteristics by round, see Table A1 in the appendix.

MEMO TO: Rebecca Goldsmith and Lola Hermosillo  
FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
DATE: 6/3/2013  
PAGE: 16

Table 6 also provides information to assess whether the intervention reached the targeted population. First, we find that 27 percent of the sample was unemployed females between 17 and 35, and 11 percent was unemployed males in that same age range. Therefore, 38 percent of the overall sample of beneficiaries was unemployed and young. We also find that 14 percent of the sample was females between 17 and 24 with at least 9<sup>th</sup> grade; similarly 12 percent of the sample was male with that same level of education. Therefore, about a quarter of the sample was young and had completed at least the 9<sup>th</sup> grade in school. We do not have data on who is a head of household so we cannot report the percent of female heads of household, but instead we present the percent of the sample who are females with economic dependents. We find that almost a third of the survey respondents were females with economic dependents.

As illustrated in Figure 2, when focusing on the first non-formal skills course taken, 21 percent of surveyed participants reported taking baking courses, 12 percent took cooking courses, 12 percent took courses in residential electrical installations, 10 percent took bricklaying courses, 10 percent took pastry-making, 7 percent took a plumbing course, 6 percent took courses in business skill development, and 22 percent took courses other than those listed here.

**Figure 2. Distribution of Courses Completed by Area**



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

Sample Size: 2,193 beneficiaries.



MEMO TO: Rebecca Goldsmith and Lola Hermosillo  
FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
DATE: 6/3/2013  
PAGE: 17

## C. EMPLOYMENT AND INCOME RESULTS

In this section, we discuss the main research question pertaining to changes in employment for the full survey sample and some key subgroups, followed by supplemental and subgroup analyses. As noted in Section B, not all key outcome indicators could be calculated for all rounds of data collection. When necessary, we present pre-post differences according to data collection rounds.

### 1. Changes in Employment Rates

*Participants reported improved employment rates after courses.* Table 7 summarizes primary employment results. Among participants surveyed in Rounds 2, 3, and 4, the percentage of employed participants increased by 30 percentage points from before the course to one year after the course, with a 15 percentage point increase in self-employed participants, a 10 percentage point increase in participants with salaried employment, and a 5 percentage point increase in other forms of employment. Furthermore, we find a statistically significant increase of 8.7 hours of weekly labor from before the course to after the course. When we look at full-time job equivalents (FTEs), we find that participants increased their labor by 0.06 FTEs (or 15 days of work) in the past year, on average. However, if we examine time worked among individuals with jobs, we find that 61 percent of participants who were employed before training reported working full-time jobs, but only 44 percent of those employed after training reported working full-time jobs.<sup>10</sup> Taken together, these two findings mean that while more people reported working after the courses, they were working fewer hours, on average, than employed individuals prior to the courses. This is in part due to newly employed individuals, who generally worked fewer hours than people who reported consistent employment before and after training.

These results were largely homogeneous for the last three rounds of data collection (Table A2). However, Round 1 survey data do not exhibit these dramatic increases in employment rates. This is largely due to the fact that the employment rate before training for Round 1 is already high at 63 percent, especially when we compare it to the employment rates before training for other rounds—which are near 40 percent. We have no viable explanation of why pre-training employment rates would be higher in Round 1 than in other rounds. However, a possible explanation why the post-training employment rate increased from 62 percent in Round 1 to 71 percent after Round 1 is that program operations could have improved in the second year of implementation, and PILAS could have helped produce better market outcomes during 2011 and 2012 (Rounds 2-4).

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<sup>10</sup> One way of calculating FTEs for the employed is dividing the FTE for the full sample by the percent of the sample that was employed. Hence, before training 61 percent of employed individuals were working full-time equivalent jobs and after training 44 percent of employed individuals were working full-time equivalent jobs.

MEMO TO: Rebecca Goldsmith and Lola Hermsillo  
 FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
 DATE: 6/3/2013  
 PAGE: 18

**Table 7. Changes in Employment**

Outcome	Before Training	After Training	Change	p-value
<b>Survey Round 1</b>				
Employed (%)	63	62	-1	0.48
<b>Survey Rounds 2-4</b>				
Employed (%)	41	71	30	0.00
Self-employed (%)	19	34	15	0.00
Salaried employee (%)	16	26	10	0.00
Other employment (%)	7	11	5	0.00
Hours worked weekly (mean)	13.2	21.8	8.7	0.00
Average level of employment in past year (in FTEs)	0.25	0.31	0.06	0.00

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

Note: The sample size for Round 1 indicator is 668, whereas sample size for Round 2-4 indicators is 1,525. Only one indicator is presented in Round 1 due to the unavailability of data elements in the Round 1 survey instrument

FTE = full-time equivalent job

## 2. Employment Rates by Gender and Educational Attainment

We also conducted a subgroup analysis of changes in employment outcomes by gender and level of education. Impacts by gender are of special interest for FOMILENIO given that the program purposely targeted 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 primary findings of this analysis are summarized below.

*We find statistically significant increases in employment rates for both men and women, but self-employment increased more among women and salaried employment increased more among men.* Male employment rates increased by 24 percentage points from before the course to one year after the course, and female employment rates increased by 34 percentage points during the same period. Interestingly, salaried employment rates increased 15 percentage points for men and only 7 percentage points for women, and self-employment rates increased only 8 percentage points for men and 20 percentage points for women. These results may reflect traditional gender roles, as men appear more likely to seek and obtain salaried employment, whereas women appear to pursue self-employment, possibly to balance domestic responsibilities. (Figure A1 in the appendix provides additional details.)

MEMO TO: Rebecca Goldsmith and Lola Hermosillo  
FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
DATE: 6/3/2013  
PAGE: 19

As we will discuss below, these gender-based differences in employment could also be related to the type of courses completed by respondents. Women tended to choose courses related to food preparation, which are conducive to self-employment. In contrast, men tended to take courses focused on manual skills, which may be more likely to lead to salaried positions. In conversations during mid-2012, FOMILENIO and CIDE staff hypothesized that the construction of the longitudinal highway—as well as local construction projects financed by municipalities during the election campaign—could have been sources of salaried employment (primarily for men) during the survey’s follow-up period.

*We find positive and statistically significant changes in employment rates for all education levels. However, more educated participants experienced larger improvements.* The general employment rate increased by 23 percentage points for participants with a primary education, 30 percentage points for participants with a lower secondary education, 33 percentage points for participants with an upper secondary education, and 33 percentage points for participants with post-secondary education. Salaried employment increased by 8 percentage points for participants with a primary education, 8 percentage points for participants with lower secondary education, 14 for upper secondary education, and 9 for participants with post-secondary (although this was the only non-significant change).

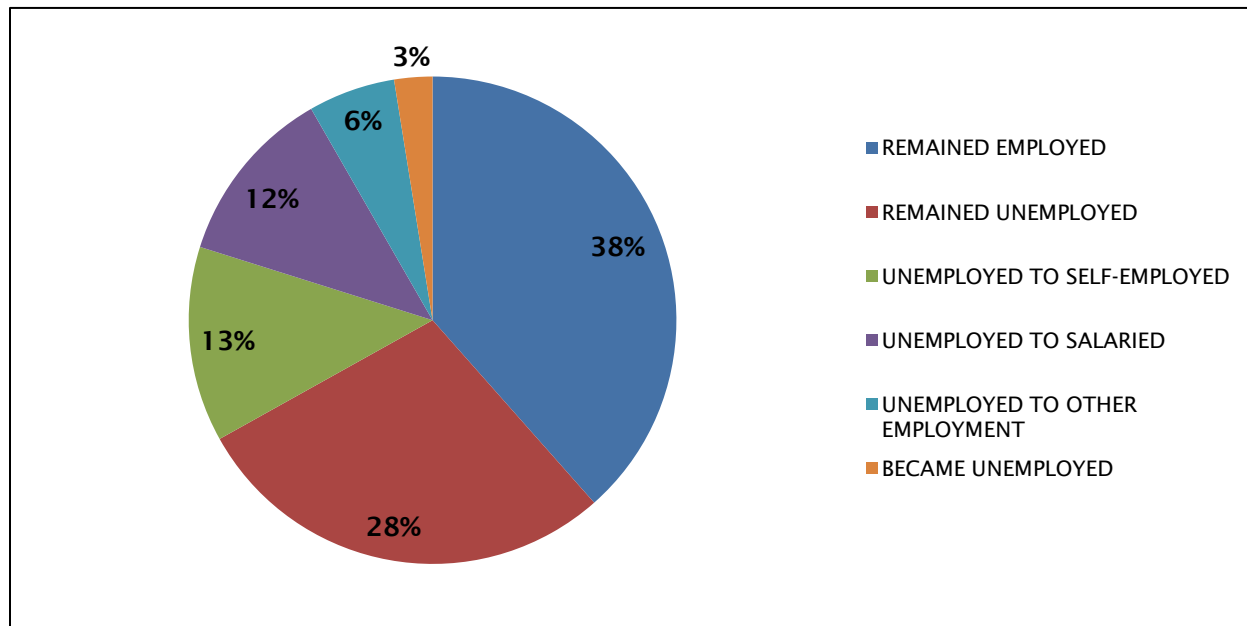
Increases in self-employment rates were also statistically significant: 12 percentage points for participants with a primary education, 18 percentage points for participants with lower secondary education, 13 percentage points for participants with upper secondary education, and 18 percentage points for participants with a post-secondary education. Overall, these findings suggest that more years of education are associated with larger improvements in employment rates. (Figure A2 in the appendix provides additional details.)

### **3. Employment Rates by Job Transition**

In order to understand how employment changed between the pre- and post-training periods, we constructed a variable that captured all possible job transitions from prior to the training course to one year after the course. These transitions are: remained employed (employed both before and after training); remained unemployed (unemployed both before and after training); transitioned from unemployed to self-employed; transitioned from unemployed to salaried employment; transitioned from unemployed to other employment (meaning employment other than self-employment or salaried employment); and transitioned from employed to unemployed (See Figure 3). Due to data limitations, this analysis was completed using the survey sample from Rounds 3 and 4. The main findings of this supplemental analysis are found below.

MEMO TO: Rebecca Goldsmith and Lola Hermsillo  
FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
DATE: 6/3/2013  
PAGE: 20

**Figure 3. Changes in Employment Status Following Training**



Source: Non-formal training survey, 2011-2012 (Rounds 3 and 4).

Sample Size: 988 beneficiaries.

*Most participants maintained their employment status between pre-training and post-training. Newly employed individuals were just as likely to report self-employment and salaried employment.* About 66 percent of the sample maintained their employment status after training (38 percent remained employed and 28 percent remained unemployed). However, 25 percent of participants transitioned from unemployment to gainful employment: 13 percent became self-employed and 12 percent accepted a salaried position.

#### **4. Employment Rates by Course Type**

We also analyzed whether changes in employment rates varied by the type of training course that participants completed (see Table A3). We completed this analysis using the sample of participants surveyed in Rounds 2 to 4 who reported taking one of the five courses with the highest number of participants: baking, cooking, residential electrical installations, bricklaying, and pastry-making. Below we summarize the key findings from this analysis.

*We found significant increases in employment rates across all courses, but participants in cooking-related courses experienced the highest gains.* Increases in employment rates were highest for participants in pastry-making, followed by participants in baking and cooking courses, electrical installation courses, and bricklaying courses. Interestingly, participants in cooking related courses were more likely to be self-employed after their courses, while individuals that took construction related courses were more likely to find salaried work. This

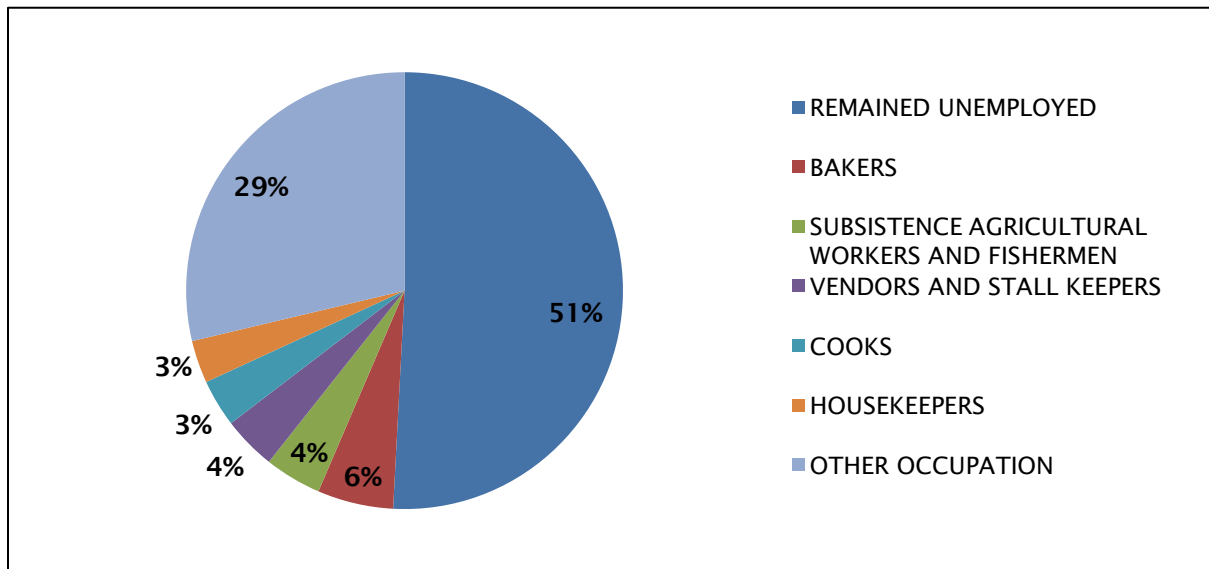
pattern is likely due to the fact that food preparation can be done in the home—and thus lends itself to self-employment—whereas participants in construction-related courses may have been more likely to find salaried work on construction projects such as the longitudinal highway. (Table A3 presents these results.)

## 5. Occupation Changes

In this section, we examine the occupations chosen by newly employed participants, as well as the pre-post changes in occupations among those who were employed before taking a non-formal skills course.

*The most common occupations for newly employed participants were bakers, farmers, vendors, cooks, and housekeepers.* As summarized in Figure 4, among participants who were unemployed before training, 51 percent remained unemployed approximately one year after the training program, six percent found employment as bakers after training, four percent became farmers, four percent became vendors, three percent became cooks, and three percent began working as housekeepers. Notably, a majority of newly employed participants who found work as bakers and cooks reported participating in food-related courses.

Figure 4. Most Common Occupations After Training of Participants Who Were Unemployed Before Training



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

Sample Size: 1,139 beneficiaries.

MEMO TO: Rebecca Goldsmith and Lola Hermosillo  
FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
DATE: 6/3/2013  
PAGE: 22

*In general, most participants who were employed before training did not change occupations after training.* Most participants who reported being farmers or fisherman, field hands, masons or construction workers, or vendors before training reported the same job after training. However, only 19 percent of the 86 participants who reported doing domestic work before training reported the same job after training. Interestingly, ten percent of domestic workers (prior to training) reported transitioning to a job as a cook after training. Similarly, nine percent of the 186 participants who reported being farmers or fisherman (prior to training) reported working in construction or masonry after training.

## **6. Additional Employment Findings**

In this section, we discuss participants' perceptions of training and self-reported means of finding employment.

*Participants cited a mix of positive and negative aspects of courses.* In surveys, participants were asked about the facilitators and barriers to training completion and employment (not shown). When asked about the most helpful aspects of the Non-Formal Skills Development Sub-Activity, 77 percent of participants said the general knowledge gained in courses was helpful. Fifteen percent mentioned that they learned improved communication skills and 6 percent said they gained specific job skills. When asked about course deficiencies, 44 percent of participants wanted more hands-on practice and 21 percent wanted more training time. In addition, 17 percent of participants expressed a desire for more detailed explanation of specific topics. The survey also asked participants several questions regarding the impact of the program on their labor market outcomes. Thirty-two percent of surveyed participants noted that as a result of the courses, they started their own business or began work that generated income—most of which was temporary employment (Table A4).

*Family and friend networks are still critical to labor market outcomes.* Family and friend networks seemed to be very important sources of employment, as almost half of participants reported finding employment through conversations with friends and relatives, and almost a quarter continued to work in a family business following the completion of the non-formal skills course (Table A4).

## **7. Changes in Income**

Next, we discuss changes in participants' annual income from before training to one year after training. First we discuss results related to changes in income for the full sample of survey respondents and some subgroups of interest. Next, we present additional analyses related to employment and income outcomes.

It is worth noting that some measurement issues were found for income indicators in Rounds 1 and 2. The top ten percent of earners for Round 1 report monthly incomes before training of between \$1000 and \$4400, while these same individuals reported monthly incomes after training

MEMO TO: Rebecca Goldsmith and Lola Hermsillo  
 FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
 DATE: 6/3/2013  
 PAGE: 23

of between \$800 and \$1200. It is possible that some people reported annual principal income instead of monthly income for pre-intervention measures during Round 1 data collection. Because a similar issue was found for annual income at Round 2, we decided to present separately the results for Rounds 3 and 4 to avoid measurement issues.<sup>11</sup>

*We find positive and statistically significant changes in all annual income indicators for Rounds 3 and 4, but not for Rounds 1 and 2.* As Table 8 illustrates, data from Rounds 3 and 4 show a positive and statistically significant change in participants' principal income (\$185), secondary income (\$76), additional income (\$123), and net annual income (\$414). (It is worth noting that the largest component of additional income is remittances.) Using Round 1 and 2 data, we find a small and non-statistically significant decrease in principal monthly income (negative \$8). It is possible that this finding is related, in part, to measurement issues in Round 1 and, to lesser extent, in Round 2.

**Table 8. Changes In Personal Income (in USD)**

Outcome	Mean Before Training	Mean After Training	Change	Sample Size <sup>a</sup>	p-value
<b>Survey Rounds 1 and 2</b>					
Net Monthly Income from Principal Economic Activity	\$73	\$65	-\$8	1,192	0.12
<b>Survey Rounds 3 and 4</b>					
Net Annual Income from Principal Economic Activity	\$474	\$659	\$185	936	0.00
Net Annual Income from Secondary Economic Activity	\$43	\$118	\$76	982	0.00
Additional Annual Income	\$208	\$332	\$123	983	0.00
<b>Total Net Annual Income</b>	<b>\$698</b>	<b>\$1,112</b>	<b>\$414</b>	<b>988</b>	<b>0.00</b>

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

<sup>a</sup>The different sample sizes for each component of income for Rounds 3 and 4 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.

<sup>11</sup> The survey instrument changed from Round 1 to Round 2. It is possible that Round 2 served as learning period where some issues related to using a new instrument were present but were solved by Rounds 3 and 4.

MEMO TO: Rebecca Goldsmith and Lola Hermsillo  
FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
DATE: 6/3/2013  
PAGE: 24

## **8. Changes in Income by Gender and Education Levels**

We also conducted subgroup analysis on income changes by gender and levels of education. The main findings from this analysis are summarized below (see also Figures A3 and A4).

*We find statistically significant increases on all annual income indicators for both men and women.* From before training to after training, men's principal income increased by \$133, secondary income increased by \$86, and total income increased by \$395. For women, principal income increased by \$216, secondary income increased by \$70, and total income increased by \$427. Thus, both men and women followed the same pattern as the overall sample. Figure A3 summarizes these results.

*Individuals with post-secondary education experienced the largest increase in total annual income during the study period.* Participants with post-secondary education experienced the largest increase in total income during the study period (\$876), followed by participants with secondary education (\$457 and \$454 for lower and upper secondary education). We find significant positive changes in all income indicators—including primary, secondary, and total income—for participants with secondary education. Interestingly, participants with a primary education improved only their secondary income (by \$94), and participants with post-secondary education experienced the largest improvements in primary income (by \$669). A possible explanation for these findings is that participants with post-secondary education found better paying jobs—potentially unrelated to training courses—that left less time for secondary activities, whereas people with a primary education used the training to complement their income through secondary activities.

## **9. Changes in Income by Job Transition**

Using the job transition categories we presented in the previous section, we explored whether newly employed participants experienced larger increases in income following training courses than participants who were employed prior to, and after, the courses.

*Increases in primary and secondary income among newly employed participants were larger than those of participants that remained employed.* We estimated changes in income from participants' principal and secondary economic activity for each type of employment transition (i.e., unemployed to self-employed, remained employed, etc.) summarized in Table 9. We find positive and statistically significant changes in principal income for four subgroups: participants who were unemployed before training and became self-employed (\$710), participants who were unemployed before training and became salaried (\$1,021), participants who were unemployed and found another type of employment (\$177), and participants who remained employed (\$67). The largest improvements in primary income occur among previously unemployed participants that found salaried jobs, followed by previously unemployed participants who became self-employed. Together, these two groups comprise one quarter of the study sample.



MEMO TO: Rebecca Goldsmith and Lola Hermosillo  
 FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
 DATE: 6/3/2013  
 PAGE: 25

**Table 9. Changes In Annual Income from Principal and Secondary Economic Activity by Employment Transition (in USD)**

Employment Transition	Mean Before Training	Mean After Training	Change	Sample Size	p-value
Unemployed to self-employed	\$0	\$710	\$710	128	0.00
Unemployed to salaried	\$0	\$1,021	\$1,021	117	0.00
Unemployed to other arrangement	\$0	\$177	\$177	57	0.00
Remained employed	\$1,376	\$1,443	\$67	328	0.17
Remained unemployed	\$0	\$0	\$0	281	N/A
Became unemployed	\$1,185	\$0	-\$1,185	21	0.00

Source: Non-formal skills survey, 2011-2012 (Rounds 3 and 4).

*Cooking related courses are associated with the largest income increases, followed by construction related courses.* Pastry and baking courses are associated with positive and significant changes in both principal (\$216 and \$219 respectively) and secondary income (\$85 and \$90 respectively), while cooking courses are only associated with significant increases in principal income (\$351). Residential electrical installations and bricklaying courses are associated with positive and significant changes in secondary income (\$118 and \$143 respectively). No significant changes in principal or secondary income are associated with plumbing courses. In terms of total income, cooking, pastry making, electrical installations, and plumbing courses are associated with significant income increases. (Table A5 summarizes these results.)

A subset of 61 individuals who took food-related courses (pastry making, baking, or cooking) reported being unemployed before the course, but employed after the course as cooks and bakers.<sup>12</sup> On average, these individuals reported very large and statistically significant increases of \$560 in principal income and \$730 in total income (not shown). These findings suggest that food preparation courses may have helped these individuals transition to new jobs in the food industry, thus substantially improving their annual income.

<sup>12</sup> These 61 individuals represented approximately 12 percent of all 492 individuals who completed food-related courses during Rounds 3 and 4.

MEMO TO: Rebecca Goldsmith and Lola Hermsillo  
 FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
 DATE: 6/3/2013  
 PAGE: 26

#### D. RESULTS FOR PILAS PARTICIPANTS

In this section, we discuss pre-post changes in employment and income for the sub-sample of PILAS participants that responded to the non-formal skills survey. As reported in Table A1, 11 percent of respondents in Round 2, 18 percent of respondents in Round 3, and 23 percent of those in Round 4 participated in PILAS. We do not have information on PILAS participants from Round 1. Hence, 12 percent of our full sample of respondents participated in PILAS. This analysis restricts the sample to the 262 survey respondents (167 female and 95 male) who participated in PILAS. When asked about what type of PILAS services they received, 32 percent said they had received advice related to salaried employment and 42 percent said they had received self-employment assistance (Table A6 in the appendix).<sup>13</sup> Below, we examine the change in employment rates for PILAS participants before and after the program (Table 10).

**Table 10. Changes in Employment Among PILAS Participants**

Outcome	Before Training	After Training	Change	p-value
Employed (%)	48	77	29	0.00
Self-employed (%)	24	44	19	0.00
Salaried employed (%)	15	21	6	0.01
Hours Worked Weekly (hours)	15.5	20.9	5.4	0.00

Source: Non-formal skills survey, 2011-2012 (Rounds 2-4).

Note: Sample size is 262

*PILAS participants had a significant increase in employment, and were more likely to become self-employed than to become salaried.* The employment rate for PILAS participants increased by 29 percentage points after participants took the courses. While there was a 19 percentage point increase in self-employment among PILAS participants, there was only a 6 percentage point increase in salaried employment. This can be explained by the fact that a larger percentage of PILAS participants received advice for self-employment than for salaried employment (Table A6). In addition, PILAS contract requirements may have favored participants who wanted to be self-employed. In conversations with CIDE and FOMILENIO staff in mid-2012, Mathematica staff learned that service providers did not receive payment for PILAS assistance unless participants were employed for 60 days. This created incentives for service providers to prioritize self-employment over employment, as it was easier to define a participant as self-employed for 60 days than to provide proof that the participant had retained a

<sup>13</sup> Question about PILAS were included in Rounds 2 to 4 but we use only Rounds 3 and 4 for income analysis to make results comparable to those presented before.

MEMO TO: Rebecca Goldsmith and Lola Hermsillo  
 FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
 DATE: 6/3/2013  
 PAGE: 27

new salaried job for 60 days. Also, self-employment may also have been the more popular option among women, who represented the majority of PILAS participants.

**Table 11. Changes In Annual Income Among PILAS Beneficiaries (In USD)**

Outcome	Mean Before Training	Mean After Training	Change	Sample Size	p-value
Net income from principal activity	\$555	\$671	\$116	193	0.12
Net income from secondary activity	\$54	\$184	\$130	200	0.00
Additional income	\$172	\$362	\$190	202	0.00
Total net income	\$756	\$1,232	\$477	202	0.00

Source: Non-formal training survey, 2011-2012 (Rounds 3 and 4)

*We find positive and statistically significant changes in all income indicators.* Similar to the findings for all participants in the Non-Formal Skills Development Sub-Activity, PILAS participants experienced an increase in all income indicators. However, PILAS participants experienced higher average increases in secondary income relative to all surveyed participants in the sub-activity (\$130 versus \$76), and slightly lower average increases in primary income relative to all participants (\$116 versus \$185).

## E. SUMMARY AND LIMITATIONS

### 1. Key Findings

Overall, we find positive and significant changes in employment rates following participants' completion of non-formal skills training courses. 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.

Improvements in self-employment and salaried employment rates were not homogeneous: Participants who took courses related to food preparation, such as cooking and baking, were more likely to be self-employed than obtain salaried employment. In contrast, participants who took courses in bricklaying and residential electrical installations had greater increases in salaried employment (as compared to self-employment). Related to these findings, self-employment increased more among women and salaried employment increased more among men.

In addition, we find evidence of positive changes in participants' principal income, secondary income, additional income, and total net annual income following training completion. Increases in primary and secondary income were particularly sizable among the newly employed (25 percent of the survey sample), especially those who obtained salaried positions after training.

MEMO TO: Rebecca Goldsmith and Lola Hermosillo  
FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
DATE: 6/3/2013  
PAGE: 28

In addition, cooking and electrical installation courses were associated with the largest income increases, followed by baking and bricklaying courses. According to an additional subgroup analysis, men and women experienced similar income increases during the study period.

Also notable, increases in employment rates and labor income differed by level of education. Although we find positive and statistically significant changes in employment rates for all education levels, the least-educated participants experienced the smallest improvement. In addition, increases in total net annual income were largest for those with post-secondary educational attainment.

Similar to the full study sample, PILAS participants experienced a significant increase in employment. However, PILAS participants were more likely to become self-employed than to become salaried, whereas these two outcomes were equally likely among the full sample. Similar to findings for the full study sample, PILAS participants experienced an increase across all income indicators.

## **2. Interpretation**

Our general finding—that participants were more likely to report being employed and earning higher incomes after participation in the non-formal skills program—suggests that the program had a positive effect. However, other factors could have also affected participants' pre-post changes in employment and income. As we note extensively in the limitations section, some of the questions differ from pre to post so part of the change must be reflecting these differences. Another important factor is the change in the general economic conditions in the Northern Zone that may be also be captured in the change in the pre-post differences; we cannot separate the effect of these changing conditions from the effect of the program.

Although we cannot attribute the full change in participants' employment and income to the non-formal skills training program, our additional analyses suggest that the program did contribute to these improved outcomes, at least for a portion of participants. In particular, a subset of unemployed individuals who took food-related courses reported finding subsequent work as bakers and cooks, and reported large increases in their primary income as a result of this work. These findings suggest that food preparation courses may have helped these individuals transition to new jobs in the food industry, thus substantially improving their annual income.

Regarding the effect of PILAS, it is impossible to determine the marginal effect of PILAS relative to the Non-Formal Skills Development Sub-Activity. For example, it is unclear whether PILAS participants' higher likelihood of self-employment (relative to the full study sample) reflects the influence of PILAS on these outcomes, the general propensity of females in the study sample to start their own businesses, or a combination of these two factors. However, because PILAS participants reported employment outcomes and income that were generally on par with individuals who participated only in non-formal skills courses, we can hypothesize that the contribution of PILAS to these outcomes was not large in magnitude to the sample discussed in

MEMO TO: Rebecca Goldsmith and Lola Hermsillo  
FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
DATE: 6/3/2013  
PAGE: 29

this memo. Analysis of later survey rounds, when PILAS was more broadly implemented, could differ from these findings that pertain to the first months of PILAS implementation.

### **3. Implications for Economic Rate of Return**

While we cannot claim that the pre-post changes in employment and income are caused by the program, these pre-post changes can be used to update some of the inputs used to calculate the economic return (ERR) of the program. As we discussed in the design memo ESVED2-07 submitted in July 11, 2011, MCC calculated the benefit stream for the ERR by accounting for the income gains of two categories of beneficiaries: 1) those who were unemployed before the course and became self-employed following the course, and 2) those who were unemployed and became salaried after the course. In Table A8, we compare empirical estimates from our analysis to MCC's original assumptions (see also Table 9). Using survey data, we estimate higher employment rates than assumed for the ERR. In MCC's initial projections, 8 percent of participants were expected to transition from unemployment (before the course) to self-employment (after the course), and we estimated this rate at 14 percent of participants.<sup>14</sup> Also according to MCC's initial projections, 11.3 percent of participants were expected to transition from unemployment to salaried employment, and we estimated this rate at 13 percent.

In contrast, original assumptions for income changes were larger than our estimations. The assumed annual income increase for previously unemployed participants that became self-employed was \$1,572, while we measured a \$710 annual increase. Similarly, the assumed annual income increase for previously unemployed participants that became salaried was \$2,364, and we estimated an annual increase of \$1,021. However, we should note that this original approach to calculating benefit streams does not account for the income gains of participants that found employment after the course but were neither salaried nor self-employed. In our estimations, six percent of the sample falls into this group, and their annual income gains are \$177 (Table 9). More importantly, this original cost-benefit model does not account for individuals who maintained employment before and after the course, but experienced an income increase related to the course. Approximately 35 percent of our sample falls in this group, and their average annual income gains are \$67 (Table 9). In addition, two percent of the participants in the sample actually lost their jobs following the course. Although we can account for these losses in the ERR model, it is unlikely that the job loss is a direct effect of the course. Rather, it is likely related to normal labor market fluctuations.

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<sup>14</sup> These percentages can be calculated using the sample sizes in Table 9. Note that the estimates presented here and in Tables 9 and A.8 are different from those presented in Table 7 because the later are based on rounds 2-4 while the former use rounds 3-4.

MEMO TO: Rebecca Goldsmith and Lola Hermsillo  
FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong  
DATE: 6/3/2013  
PAGE: 30

#### 4. Study Limitations

This evaluation has several limitations. Changes in employment or income cannot be attributed to the training program because of fundamental limitations of the study's pre-post design that are discussed in this section.

First, several economic factors outside of the Non-Formal Skills Development Sub-Activity could have influenced outcomes during the study period. The inflation rate in El Salvador from September 2010 to September 2011 was 6.2 percent, and inflation from December 2010 to December 2011 was 5.1 percent.<sup>15</sup> While we use these rates to account for the effect of inflation on participants' changes in income, other trends in the Salvadoran labor market during that period that could have affected participants' employment outcomes and incomes. The macroeconomic analysis of the Northern Zone conducted for FOMILENIO reported that from 2010 to 2011, there was an increase in the percentage of the economically active population who was employed, and this increase more than doubled the increment on employment gains from 2009 to 2010.<sup>16</sup> This means that independent of the non-formal skills training program, employment was rising in the Northern Zone during the period of study. Therefore, there is no way to measure how much of the positive changes are due to the program and how much are due to other economic factors.

Second, the survey instrument has important limitations. For instance, variable measurement is affected by recall bias, as pre-training information was gathered retrospectively a year after completion of the course. In addition, the survey instrument was modified after the first survey round. For this reason, some measures such as income are not consistently defined across rounds. More importantly, questions about employment and income before training differ from the post-training questions, largely due to the difficulties inherent in asking detailed questions about a past time period. Therefore, part of the changes pre-post could be related to the different questions and not to real changes in key employment outcomes. For both pre and post time periods, we used respondents' reported income from one month to derive all annual income indicators. This may not accurately capture annual income due to the high prevalence of seasonal or temporary jobs among survey respondents.

Third, the survey sampling methodology also had key limitations which restrict the generalization of these results. The findings of this study cannot be generalized to all the non-formal skills training participants because the survey focused only on participants that successfully completed the training. Program completers tend to be more motivated and skilled than non-completers. However, this may not be a large issue because the sub-activity's

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<sup>15</sup>Based on the consumer price index reported by the Salvadoran Central Bank <http://www.bcr.gob.sv/bcrsite/?cdr=123&lang=es>

<sup>16</sup> See Cuadro 5 in "Análisis macroeconómico de la Zona Norte durante la implementación del programa de FOMILENIO," Zacarías Ferit, García Josué, Oliva José Andrés, y Salazar Jonnathan, Junio 2012.

MEMO TO: Rebecca Goldsmith and Lola Hermosillo

FROM: Larissa Campuzano, Elena Blebea, Randall Blair, Seth Morgan, Carolyn Chuong

DATE: 6/3/2013

PAGE: 31

completion rate was relatively high (95 percent). A more important issue is that the survey had a low response rate at around 56 percent. The beneficiary database, which was derived from application form data, included incorrect and unreliable data. For example, many participants had incorrect addresses or course completion dates. These issues led to low response rates which may bias the results if respondents are systematically different than non-respondents. Unfortunately, because we do not have baseline information for non-respondents, we cannot assess the extent of bias between respondents and non-respondents. CIDE staff is currently verifying and ensuring the accuracy of these data to help avoid similar sampling issues during future survey rounds.

## APPENDIX

**Table A1. Baseline Characteristics of Survey Beneficiaries by Survey Round**

Characteristics	Rounds	Mean	SD	Sample Size
Age (years)	1	30.3	12.6	668
	2	30.7	12.0	537
	3	29.7	11.3	449
	4	32.0	12.0	539
	Overall	30.7	12.1	2,193
Female (%)	1	72	45	668
	2	48	50	537
	3	51	50	449
	4	69	46	539
	Overall	61	49	2,193
Urban (%)	1	40	49	668
	2	42	49	537
	3	30	46	449
	4	45	50	539
	Overall	40	49	2,193
Has children (%)	1	53	50	668
	2	49	50	537
	3	50	50	449
	4	60	49	539
	Overall	53	50	2,193
Number of economic dependents	1	1.3	1.8	668
	2	1.5	1.9	537
	3	1.5	1.8	449
	4	1.3	1.6	539
	Overall	1.4	1.8	2,193
Taken more than one course (%)	1	17	37	668
	2	31	46	537
	3	31	46	449
	4	27	44	539
	Overall	26	44	2,193
Years of Education	1	8.3	3.6	667
	2	8.2	3.8	536
	3	8.3	3.6	449
	4	8.5	3.7	539
	Overall	8.3	3.7	2,191
Work experience (years)	1	7.1	9.6	668
	2	9.7	10.7	537
	3	8.3	9.4	449
	4	8.5	9.7	539
	Overall	8.3	9.9	2,193
Currently studying (%)	1	16	37	668
	2	11	32	537
	3	9	29	449
	4	8	27	539
	Overall	12	32	2,193
PILAS beneficiary (%)	1	0	0	668
	2	11	32	537
	3	18	38	449
	4	23	42	539



Characteristics	Rounds	Mean	SD	Sample Size
	Overall	12	32	2,193
Unemployed female between 17 and 35 (%)	1	22	41	668
	2	24	43	537
	3	29	46	449
	4	35	48	539
	Overall	27	44	2,193
Unemployed male between 17 and 35 (%)	1	4	20	668
	2	18	38	537
	3	17	37	449
	4	10	30	539
	Overall	11	32	2,193
Female between 17 and 24 with at least 9 <sup>th</sup> grade education (%)	1	18	38	667
	2	10	30	536
	3	11	31	449
	4	14	35	539
	Overall	14	34	2,191
Male between 17 and 24 with at least 9 <sup>th</sup> grade education (%)	1	10	30	667
	2	15	35	536
	3	18	39	449
	4	7	26	539
	Overall	12	33	2,191
Female with at least one dependent (%)	1	35	48	668
	2	24	43	537
	3	28	45	449
	4	38	49	539
	Overall	32	47	2,193

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

**Table A2. Changes In Employment by Survey Round**

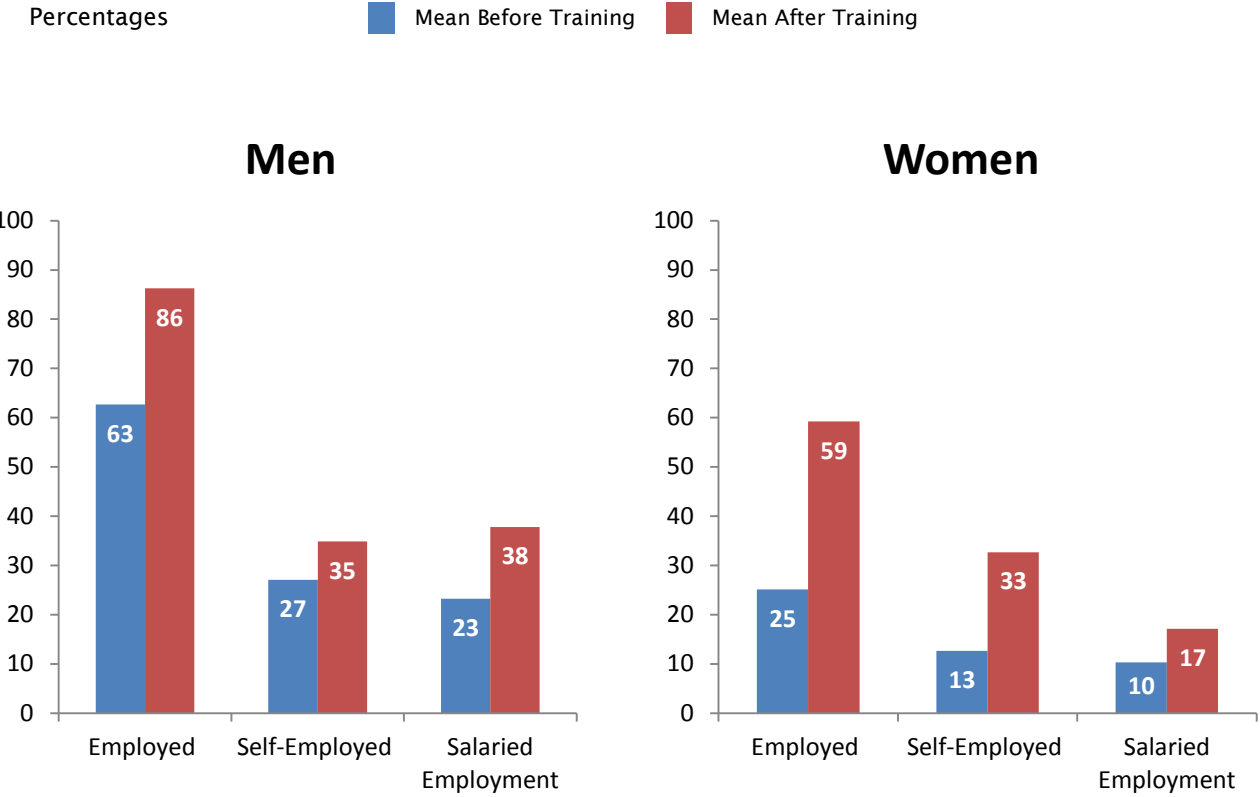
Survey Round	Outcome	Mean Before Training	Mean After Training	Change	Sample Size	p-value
1	Employed (%)	63	62	-1	668	0.48
	Hours Worked Weekly	NA	20.9	NA	0	NA
	Became self-employed (%)	NA	27	NA	0	NA
	Became salaried employed (%)	NA	24	NA	0	NA
2	Employed (%)	42	74	32	537	0.00
	Hours Worked Weekly	13.2	25.4	12.2	537	0.00
	Became self-employed (%)	19	35	17	537	0.00
	Became salaried employed (%)	16	26	10	537	0.00
3	Employed (%)	41	69	28	449	0.00
	Hours Worked Weekly	13.5	21.0	7.5	449	0.00
	Became self-employed (%)	18	33	15	449	0.00
	Became salaried employed (%)	16	28	12	449	0.00
4	Employed (%)	41	69	28	539	0.00
	Hours Worked Weekly	12.8	18.9	6.1	539	0.00
	Became self-employed (%)	20	33	13	539	0.00
	Became salaried employed (%)	16	25	9	539	0.00
All	Employed (%)	48	68	20	2,193	0.00
	Hours Worked Weekly	13.2	21.8	8.7	1,525	0.00
	Became self-employed (%)	19	34	15	1,525	0.00
	Became salaried employed (%)	16	26	10	1,525	0.00

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

Note: Became self-employed or salaried includes participants employed and unemployed pre-intervention who became self-employed or salaried after-intervention.

NA: Not Available

Figure A1. Changes in Employment by Gender, Rounds 2 to 4



**Figure A2. Changes in Employment by Level of Education, Rounds 2 to 4**

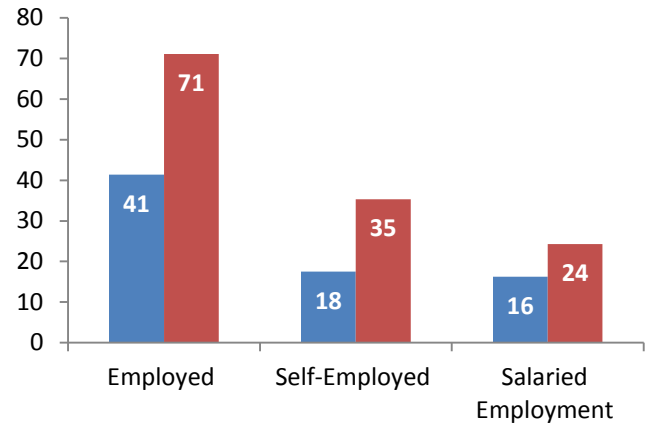
Percentages

■ Mean Before Training ■ Mean After Training

**Primary Level  
(0-5 years)**



**Lower secondary level  
(6-9 years)**



**Upper secondary level  
(10-12 years)**



**Post-secondary level  
(13-17 years)**



**Table A3. Changes In Employment Among Different Courses**

Course	Outcome	Mean Before Training	Mean After Training	Change	Sample Size	p-value
Baking	Employed (%)	20	52	32	297	0.00
	Self-employment (%)	11	28	17	297	0.00
	Salaried employment (%)	7	13	6	297	0.00
Cooking	Employed (%)	24	56	32	193	0.00
	Self-employment (%)	10	27	17	193	0.00
	Salaried employment (%)	11	19	8	193	0.01
Residential Electrical Installations	Employed (%)	61	87	26	237	0.00
	Self-employment (%)	24	33	10	237	0.00
	Salaried employment (%)	28	44	16	237	0.00
Bricklaying	Employed (%)	67	89	22	196	0.00
	Self-employment (%)	32	42	10	196	0.00
	Salaried employment (%)	17	31	14	196	0.00
Pastry-Making	Employed (%)	24	67	43	204	0.00
	Self-employment (%)	17	41	24	204	0.00
	Salaried employment (%)	5	16	10	204	0.00

Source: Non-formal training survey, 2011-2012 (Rounds 2 to 4).

**Table A4. Qualitative Assessments of Beneficiaries Who Had Completed the Informal Training**

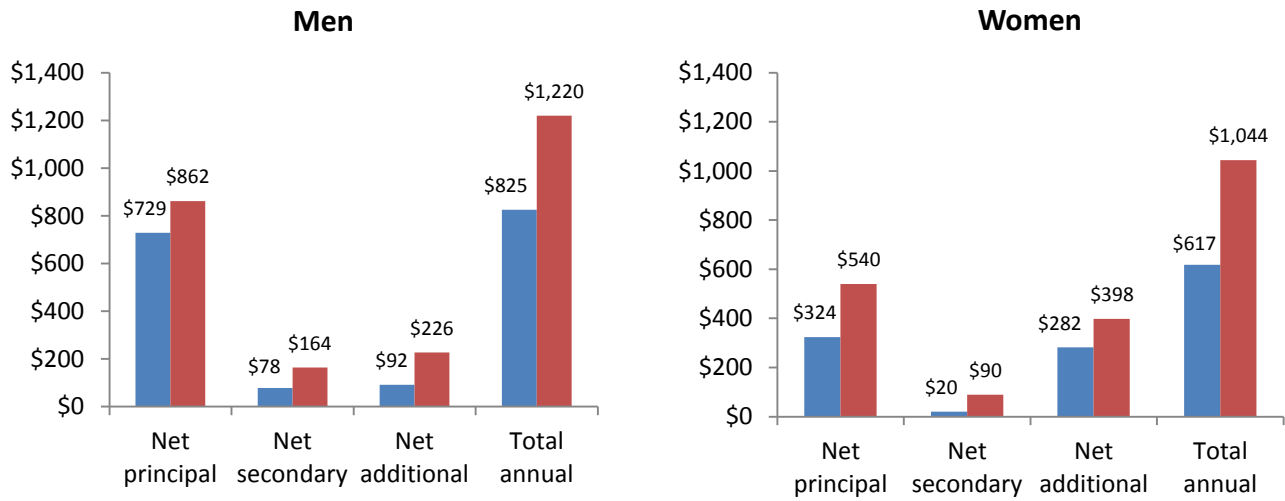
Question		Percent Yes	Sample Size
As a result of the courses received did you start your own business or begin work that earned an income?		32	2,193
For what type of economic activity did you use this course?	Permanent employment	1	2,193
	Temporary employment	15	2,193
	My own business	12	2,193
	None of the above	68	2,193
	Other	4	2,193
How did you find your employment? <sup>a</sup>	Contacted employment offices	1	1,495
	Negotiated directly with businesses	5	1,495
	Negotiated with farms	1	1,495
	Negotiated with friends, relatives	47	1,495
	Placed an advertisement or responded to advertisements in newspapers	1	1,495
	Looked for land or a building to establish their own business	0	1,495
	Negotiated to obtain financial resources and establish their own business	9	1,495
	Participated in PILAS services	1	1,495
	Continued to work in a family business	27	1,495
	Other	7	1,495

Source: Non-formal training survey, 2011-2012 (All Rounds).

<sup>a</sup>This question was conditional upon beneficiary being employed

**Figure A3. Changes in Income by Gender, Rounds 3 and 4**

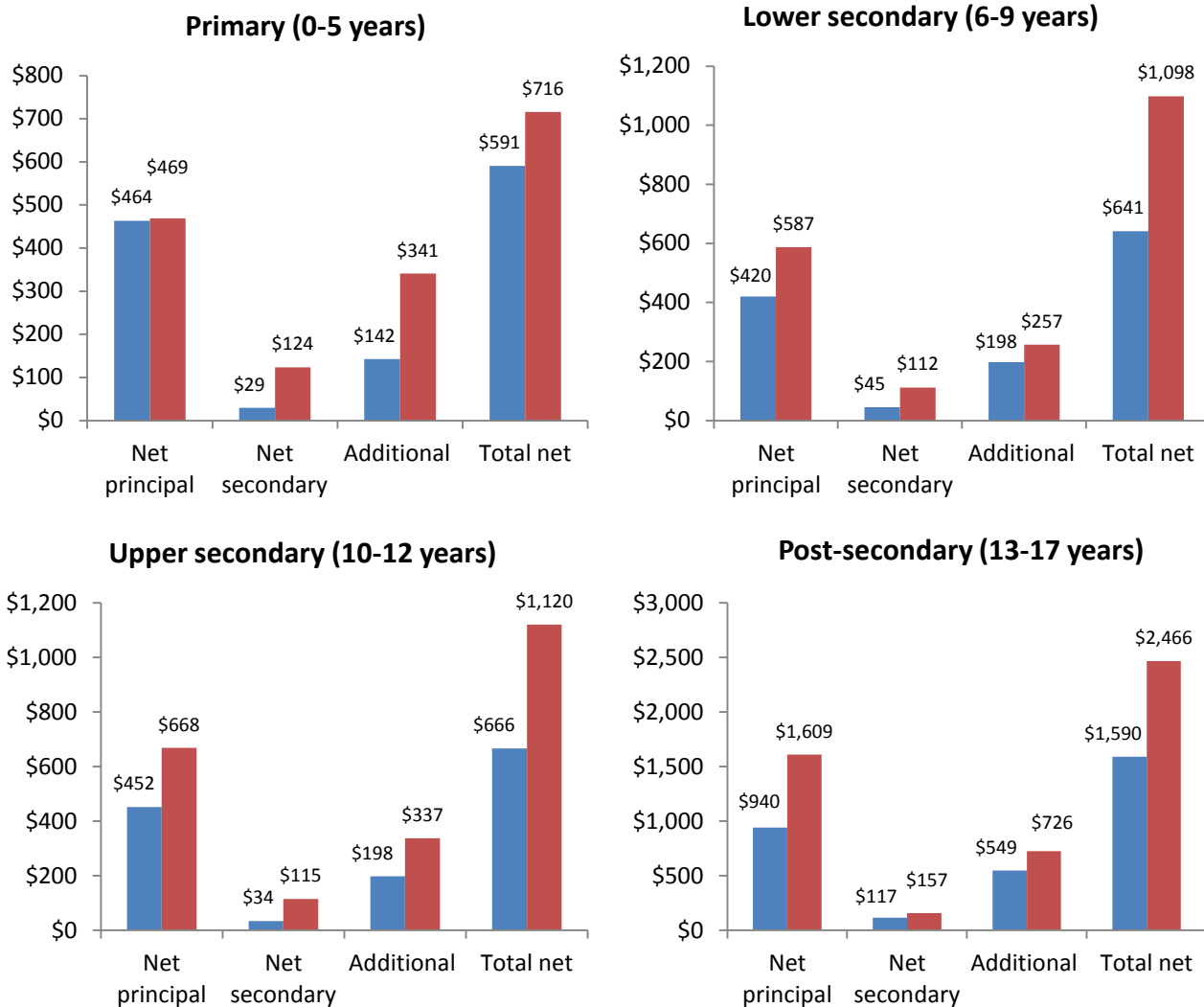
Percentages ■ Mean Before Training ■ Mean After Training



**Figure A4. Changes in Income by Level of Education, Rounds 3 to 4**

Percentages

■ Mean Before Training ■ Mean After Training





**Table A5. Changes In Net Annual Income Among Different Courses (In USD)**

Course	Outcome	Mean Before Training	Mean After Training	Change	Sample Size	p-value
Baking	Principal Economic Activity	173	392	219	249	0.00
	Secondary Economic Activity	18	108	90	255	0.00
	Total Net Annual Income	447	890	443	256	0.07
Cooking	Principal Economic Activity	450	801	351	112	0.04
	Secondary Economic Activity	13	70	56	116	0.09
	Total Net Annual Income (in USD)	732	1,365	633	116	0.02
Pastry-Making	Principal Economic Activity	405	621	216	117	0.01
	Secondary Economic Activity	3	87	85	120	0.00
	Total Net Annual Income	663	1,172	509	120	0.00
Residential Electrical Installations	Principal Economic Activity	876	989	114	131	0.27
	Secondary Economic Activity	61	179	118	141	0.03
	Total Net Annual Income	965	1,329	364	142	0.01

Course	Outcome	Mean Before Training	Mean After Training	Change	Sample Size	<i>p</i> -value
Bricklaying	Principal Economic Activity	734	531	-203	68	0.37
	Secondary Economic Activity	63	206	143	77	0.03
	Total Net Annual Income	712	861	149	79	0.52
Plumbing	Principal Economic Activity	537	689	152	124	0.16
	Secondary Economic Activity	80	100	20	134	0.74
	Total Net Annual Income	769	1,097	328	135	0.00

Source: Non-formal training survey, 2011-2012 (Rounds 3 to 4)

**Table A6. Services That PILAS Beneficiaries Received**

Services	Number of beneficiaries still in the process of receiving this service	Number of beneficiaries who had finished this service	Sample Size
Identified and selected as a PILAS beneficiary	73	187	262 <sup>a</sup>
Employment advice or found employment with existing organization	43	40	83
Advice for self-employment or found self-employment	79	29	108

Source: Non-formal training survey, 2011-2012 (Rounds 2 to 4).

<sup>a</sup> Two people did not specify final or process and thus the numbers do not total 262.

**Table A7. Main Outcomes and Measurement Issues**

Outcome	Measurement Issues
<b>Employment Indicators</b>	
Employed	Only asks about the last week or an imminent return to work.
Self-employed	Not included in round 1.
Salaried employment	Not included in round 1.
Other employment	Not included in round 1.
Hours Worked Weekly	Only asks about the past week.
Full Time Equivalent	FTE is defined as working 8 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 one worked post-intervention, we used data on how many months out of the last year one 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 one worked. For both pre and post-intervention, we assumed that the respondent worked 4 weeks per month. We calculated FTE by multiplying weekly hours by 4 weeks by number of months, and then dividing that figure by 2000.
<b>Income Indicators</b>	
Total Net Annual Income from Principal Economic Activity	<p>Only asks about income earned in the past month.</p> <p>While both pre-intervention and post-intervention questions ask about monthly income in the past month, the survey does not ask for how many months was this income earned in the 12 previous months for pre-intervention but does ask for post-intervention. We imputed the number of months earned that income 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 at that position for less than a year, we used the number of months listed. We then multiplied this number by income earned in the month to get annual income.</p> <p>Annual measures for pre-intervention income for rounds 1 and 2 seemed unreliable hence only monthly measures were used.</p>

Outcome	Measurement Issues
Total Net Annual Income from Secondary Economic Activity	<p>Only asks about income earned in the past month. Not included in round 1.</p> <p>Pre-intervention question asks for net annual secondary income while post-intervention questions ask for gross monthly income in the previous month, monthly costs, and for how many months was this income earned in the 12 previous 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>
Additional Total Annual Income	<p>Not included in round 1.</p> <p>Pre-intervention question asks for annual income earned from additional activities and provides a few examples of additional activities. The post-intervention question lists multiple potential additional activities and, for each, asks about the amount earned and the number of times per year that amount is received.</p>
Total Net Annual Income	All the measurement issues discussed above for each component of total annual income (principal, secondary, and additional income) affect this measure.

**Table A8. Comparison of Assumed Values For ERR Calculation With Estimated Values**

Component	Assumed value	Estimated value
Change in principal plus secondary annual income from participants who were unemployed before training and self-employed after	\$1,572	\$710
Change in principal plus secondary annual income from participants who were unemployed before training and salaried after	\$2,364	\$1,021
Course non-completion rate (percent)	18	5
Percent of previously unemployed participants who found salaried employment after the course	11.3	13
Percent of previously unemployed participants who became self-employed after the course	8	14

Source: Assumed values come from ERR calculations provided by MCC and estimated values from Non-formal training survey, 2011-2012 (Rounds 3 and 4) and also appear in Table 9.

cc: Claudia Argueta