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MEMORANDUM

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FROM: Larissa Campuzano and Randall Blair

DATE: 1/05/12
ESVED2-07 Rev

SUBJECT: Final Performance Evaluation Design for the Non-Formal Skills Development Activity

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SUMMARY

This memorandum presents the final evaluation design for Fondo del Milenio's (FOMILENIO) Non-Formal Skills Development activity. In previous memoranda (ESVED-100 and ESVED-111), we proposed design options for an impact evaluation of this activity. However, rigorous impact evaluation designs did not seem feasible given the plans for implementation for the Non-Formal Skills Development activity. After discussions with stakeholders, it was decided that this activity was not going to be evaluated. Currently, there is renewed interest in evaluating this activity. Unfortunately, implementation has already started and the program has served over 90 percent of the target number of beneficiaries which limits the possible evaluation designs. A rigorous impact evaluation is not feasible; therefore, we are recommending a performance evaluation design based on a pre-post comparison. We will use data from a follow-up study that FOMILENIO is conducting for the Non-Formal Skills Development activity in order to obtain retrospective baseline data and post program information for the beneficiaries that completed the courses. This is a feasible design at this point, but it will not allow us to attribute to the program, with confidence and no bias, the changes in outcomes before and after the program. These changes will provide weak evidence of the effects of the program because other events could have also affected the outcome changes before and after the program.

A. DESCRIPTION OF THE INTERVENTION

The Non-Forma Skills Development activity of the Human Development Project of the El Salvador Compact program aims to increase education and skills levels in the Northern Zone of El Salvador through improvements in the quality of and access to education and training programs for groups such as the poor, women, and at-risk youth. The ultimate goal of this program is to increase labor market participation and self-employment opportunities for those groups. The statement of work of the El Salvador Compact program indicates that up to 13,000

women, at-risk youth, and other participants in the 94 municipalities of the Northern Zone could benefit from the Non-Formal Skills Development activity.

The Non-Formal Skills Development activity will provide short-term training services to at-risk populations who are unable or unlikely to seek formal education services. Limited availability of formal education programs, living in rural areas, not having adequate formal education credentials to enter technical high schools, and being primary caregivers of children or other relatives are constrains that prevent the poor, women, and youth from attending extended formal education and training programs. Given those constraints, the non-formal training program will be offered on a demand-only basis. That is, training will be provided only to those seeking to be trained.

Since 1996, the Programa Habilitación para el Trabajo (HÁBIL), implemented by the Instituto Salvadoreño de Formación Profesional (INSAFORP), has offered work rehabilitation services in El Salvador. The Consortium for International Development in Education (CIDE) indicates that HÁBIL trained 1,754 participants during 2007 in eight departments in the Northern Zone (Informe Diagnóstico Final, May 2008). Most of the HÁBIL participants in 2007 were female (79 percent) and 60 percent of all 2007 participants from the Northern Zone lived in only two departments: Chalatenango (21 percent), and Morazán (39 percent). Although HÁBIL offered training in several fields or subject areas, 75 percent of the participants received training in three fields only: (1) preparation of baked goods and confections, (2) tailoring, and (3) cosmetology. These fields of training are traditionally demanded by women as they provide skills that can be used to work from home. According to CIDE, the HÁBIL program has provided training on skills demanded by the trainees rather than focusing on training on skills applicable in the local labor market. Due to their previous experience in implementing similar programs, INSAFORP is the entity in charge of the implementation of the Non-Forma Skills Development activity for FOMILENIO. However, the courses offered will differ from those that INSAFORP has traditionally offered.

The Non-Formal Skills Development activity will expand the training opportunities currently available in the Northern Zone and will provide training on skills needed in the local labor market. The program is described in CIDE's Plan de Formación Profesional (Entregable 5, December 2008). The plan prioritizes training on skills that will be needed in other FOMILENIO programs such as Human Development, Connectivity, or Productive Development. The plan describes the target population as women head of household, non-economically active women regardless of their level of education, women between 17 and 24 that completed at least 9th grade, women with disabilities. Men are also served, but higher priority will be given to women. Target groups for men are: non-economic active men between 17 and 35 years old regardless of their level of education, men between 17 and 24 years old that completed at least 9th grade, and men with disabilities.

One of the premises of the program is that the offer of training will be flexible, the idea being that the target population faces constraints so the training should try to work around the constraints in terms of schedule and geographic location. Ideally training will be offered where

the target population resides and the schedule will be amenable to their needs. The plan requires a period of intense outreach of the non-formal training courses in order to reach the target population that historically has been hard to reach.

The plan proposes three types of programs. First, technical and productive training will focus on developing the skills needed for the economic development of the Northern Zone. Second, training for FOMILENIO activities will focus on developing skills needed for other FOMILENIO activities such as highway construction. Third, training for self-employment will focus on skills needed for the economic development of the mirco-region. All of the programs and other activities related to this activity will also focus on helping the beneficiaries participate in the labor market either by decreasing potential barriers for entry to the market or by providing tools that will increase their likelihood of participating. This last objective has been formally addressed by the program "Programa de Inserción Laboral y Autoempleo Sostenible en la Zona Norte (PILAS)" that began in the first semester of 2011. PILAS objective is to serve the beneficiaries that have participated in FOMILENIO's Education and Training activities by providing intermediation to participate in the labor market and/or technical assistance for business development.

CIDE's Plan de Formación Profesional presents target numbers on the beneficiaries to be served (approximately 8,000 women and 5,000 men) but these targets have changed over time. The program began offering courses in May of 2009 and will end in March of 2012. According to El Salvador Program Monitoring and Evaluation Plan the current target number of beneficiaries that will be served by this program during the five compact years is 8,400. Table 1 provides more information on the target number of beneficiaries to be served during the compact.

TABLE 1

TARGET NUMBER OF BENEFICIARIES OF THE NON-FORMAL TRAINING ACTIVITY

	Target number of beneficiaries
Compact year 1 (2007-2008)	0
Compact year 2 (2008-2009)	970
Compact year 3 (2009-2010)	2,933
Compact year 4 (2010-2011)	4,213
Compact year 5 (2011-2012)	284
Total	**8,400**

Source: El Salvador Program Monitoring and Evaluation Plan (February 2011) Version 4

Non-formal training courses had been offered in seven areas: (1) hotel services and tourism, (2) construction, (3) manufacture, (4) management and trade, (5) industrial services, (6) agriculture and livestock, and (7) social advancement.

Although PILAS is a program that was developed and implemented after the Non-Formal Skills Development activity these two programs overlap. According to PILAS implementation rules, the program will need to serve all the beneficiaries of the non-formal training component. As part of the evaluation we will assess if it is possible to separate the effects of the PILAS component.[1]

B. KEY RESEARCH QUESTION

The purpose of conducting an impact evaluation is to determine whether or not participants in FOMILENIO's non-formal training programs are better off than they would have been without receiving the training. Specifically, the evaluation should answer the question:

- What is the impact of FOMILENIO's non-formal training program on beneficiaries' labor market outcomes and income?

Other questions we will be answering are:

- What are the characteristics of participants in the Non-Formal Skill Development activity?
- What are the facilitators and barriers to training completion and employment?
- Was the program cost effective and what was the economic rate of return?

C. EVALUATION DESIGN

1. Previous Evaluation Designs

In 2007, when Mathematica first proposed designs for the activities that would be evaluated under the Education Component the operations rules of the non-formal training program had not been established, therefore no design for this activity was initially proposed (see memo ESVED-020). In 2008, Mathematica reviewed existing studies of impact evaluations of skills development programs in Latin America similar to FOMILENIO's non-formal training in order to inform possible designs for this activity. This review was summarized in memo ESVED-100. In it, we focused on random assignment designs as well matching designs. After feedback from MCC and FOMILENIO, Mathematica looked for alternatives other than random assignment designs since those seemed unfeasible at the time. Memo ESVED-111 described some

[1] We will assess the possibility of comparing groups of people served before PILAS was implemented to groups of people served after PILAS was implemented. Currently there is no formal design but we will update this document if we find possible ways to assess PILAS effect.

alternatives for an impact evaluation design for the Non-Forma Skills Development activity including randomized encouragement designs, matching, and an in-depth case study. After further discussions with MCC and FOMILENIO it was decided that the informal training activity was not going to be evaluated because rigorous designs were unfeasible and MCC was not interested in a case study of this activity.

MCC is again interested in evaluating this activity but the program has been implemented since May of 2009. As Table 1 shows, only 284 of a total of 8,400 target beneficiaries will be served in the next year, which means that almost 97 percent of the beneficiaries had already been served. This places an important restriction on the type of designs we can propose at this point. The other restriction we face is the data availability. Although beneficiaries completed an application form at the time of entry to the program the data is neither reliable nor detailed enough for the evaluation. More importantly, at this stage it will be difficult to find a suitable comparison group given the lack of data sets that could be used for matching at baseline.

2. Proposed Evaluation Design

To answer the research question, we need to estimate the "counterfactual", which is what would have happened if the beneficiaries had not received the training. The evaluation design will determine the counterfactual. As we discussed above, there is no data set that would allow us to find a suitable comparison group through statistical matching. Furthermore, the program has already been implemented. Because of two issues, the only feasible design at this point is a pre-post design, where the counterfactual is represented by the participants before they were served by the program.

Almost 95 percent of the beneficiaries target number have already been served (see Tables 1 and 2). In addition, at this point, it is impossible to collect baseline data for those people that have participated in the program. One alternative will be to use as baseline data that was collected in the application form before the training started. However, application data are problematic because not all the beneficiaries completed the entire questionnaire, resulting in item-specific missing data. In addition, there were entry data errors when creating the electronic files. Given that the application data is unreliable, another alternative is to ask retrospectively about baseline information. FOMILENIO has hired CIDE to do a follow-up study on the beneficiaries of the Non-Formal Skill Development program and of the PILAS program. We will use this opportunity to collect retrospectively baseline data to be used in this evaluation. The follow-up study CIDE will conduct consists of a survey of beneficiaries that completed courses one year after they completed the course.[2]

[2] For the last cohort, we can use baseline data collected from the application form since FOMILENIO has made efforts to improve the quality of the data. The analysis of this cohort would need to be done separately given that the data sources will differ.

As a result of these limitations, the only feasible evaluation design is a comparison of the retrospective baseline data to the post-program data that will be collected in the follow-up survey. However, collection of retrospective baseline data may be problematic because of individual recall issues for periods far back relative to the interview date. Since the application data is incomplete and not reliable, we believe it is better to use retrospective data than application data.

The proposed pre-post design is not sufficiently rigorous because we cannot attribute to the program the difference between the values before and after participation in the Non-Formal Skill Development program. Other events could have contributed to the pre-post changes in outcomes, for example changes in the Salvadoran economy, or increments in overall wages unrelated to the program (inflation), could be affecting the pre-post difference. This problem may be mitigated by the fact that the courses were offered at different points in time and we will be finding the pre-post changes for each of these groups separately (one effect per cohort served) and pooling these cohort effects to obtain an overall effect. Table 2 below presents the number of beneficiaries that have completed the non-formal training courses in the cohorts that have been served.

TABLE 2

NUMBER OF BENEFICIARIES THAT HAVE COMPLETED THE NON-FORMAL TRAINING COURSES

Period of attendance	Number of beneficiaries that completed the courses
May 2009 to March 2010	2,317
April to June 2010	1,048
July to September 2010	874
October to December 2010	1,313
January to March 2011	1,287
April to June 2011	1,124
Total	**7,963**

Source: Monitoring data from SIREB facilitated by CIDE

An additional limitation of this design is related to the sample that will be the focus of the follow-up study. The follow-up study target sample is the beneficiaries that *completed* the training courses, which is clearly a selected sample. People that complete the course may be different to the non-completers, more motivated, more skilled, etc. These characteristics are also related to having better income or labor market outcomes. Therefore, the findings of the pre-post comparison cannot be generalized to all the beneficiaries but only to those that successfully completed the training. In our study, we will discuss how many beneficiaries did not complete the courses and compare this number to the beneficiaries that completed the courses to provide an idea of the percent of beneficiaries completing courses. However, because we do not have

baseline information for non-completers, we cannot assess how different completers were from non-completers on their baseline characteristics.

The pre-post design proposed is feasible. However, it will not allow us to attribute to the program the differences in outcomes before and after the program, but will provide evidence of the effects of the program.

D. OUTCOME INDICATORS AND DATA SOURCES

As explained before, the main data source for the analysis will be data from the questionnaire used for the follow-up study that CIDE will conduct. The data collection plan is to survey the beneficiaries one year after they completed the course. Note that this will be possible for all but the first cohort since data collection started in May of 2011 and the first cohort of beneficiaries finished in March of 2010. Mathematica has reviewed the questionnaire that will be used for the follow-up study and proposed modifications that will allow us to collect retrospective information on the main outcome indicators.[3]

Outcome indicators that we will build from CIDE's data are:

1. **Labor market outcomes:** entry to formal labor market (employment), self-employment, and duration of employment.
2. **Income:** income from employment, income from self-employment, and income from non-salaried sources.

The data collection for CIDE's follow-up study will cover the beneficiaries that attended the courses from May 2009 to June 2011. CIDE will conduct the survey in stages starting with the cohort that was served from May of 2009 to March 2010 as Table 3 summarizes.

We will follow a similar process to collect data for the beneficiaries that attended the courses from July 2011 to March 2012. A data collector has not been identified yet, but the process of data collection will be similar to the one used for the follow-up study in order to be able to pool the data for this evaluation.

[3] The first round of data collection started before we had determined that the questionnaire will be used to collect baseline information. The first round focuses on the cohort that received services from May 2009 to March 2010. This data collection will not use the revised questionnaire that includes detailed baseline information. Although some baseline information was included in the first round of data collection, the level of detail may differ from the later rounds of data collection. Therefore, we will analyze each cohort separately.

TABLE 3
SAMPLE SIZES FOR CIDE's SURVEY

Period of attendance	Survey's sample size
May 2009 to March 2010	747
April to June 2010	567
July to September 2010	554
October to December 2010	538
January to March 2011	269
April to June 2011	269
Total	**2,935**

Source: CIDE's Plan de Trabajo para el Seguimiento de Personas Beneficiarias de los Cursos de Educación No Formal y del PILAS

E. ESTIMATING PROGRAM EFFECTS

The analysis will rely on a comparison of the mean outcomes of the beneficiaries before attending the training courses and after completing the courses. We can also use a regression framework to account for individual characteristics such as gender, age, as well as to incorporate differences due to area of study.[4] The basic model can be expressed as follows:

$$(1) \quad y_{it} - y_{it-1} = \alpha + \beta' x_i + \varepsilon_i$$

where y_{it}-y_{it-1} is the change in outcome of interest for beneficiary i, x_i is a vector of demographic characteristics of beneficiary i that could include gender, age, and an indicator variable for the area of study, and ε_i is a random error term for beneficiary i. The estimate for α represents the program effect on the outcome of interest. Because the survey will be collected separately for each cohort we will estimate an effect for each cohort. Then, the overall program effect will be calculated pooling the cohort effects together.[5]

[4] The main areas have been (1) hotel services and tourism, (2) construction, (3) manufacture, (4) management and trade, (5) industrial services, (6) agriculture and livestock, and (7) social advancement.

[5] We can use a weighted average, where the weights are based on the number of people in each cohort. Or run a regression where all the data is pooled together.

F. EX-POST ECONOMIC RATES OF RETURN

MCC uses economic rates return (ERR) to compare the costs and benefits that the intervention produces in a certain period of time order to make for assessing the economic impact of the intervention. ERR calculations consider the benefits and costs to all members of the society. The costs include costs incurred by anyone impacted by the project, all costs paid by MCC, costs by other donors or local governments, and resource costs, when they are incurred. The benefits include increments in income for the beneficiaries (above and beyond what they would have made without the program); cost savings (for example lower medical costs); time savings; and indirect benefits (for example fiscal savings or increased value of natural resources).

The ERR is calculated as the discount rate at which net present value (NPV) of the total benefits of the program equal the NPV of the total costs over the determined period of time (normally MCC uses 20 years). MCC uses information from a variety of data sources to estimate the potential benefits and costs of the projects.

The MCC's existing ERR for the Non-Forma Skills Development activity is based on the following assumptions:

- The only cost is MCC's cost for the Non-Forma Skills Development activity (including management costs). Let's denote the program's annual cost by C_t adjusted by inflation for the five years of implementation t=1,…,5.
- The benefit for beneficiaries is the difference between the income after the training and the income before training. Income after training will be different for employed and self-employed. Let's denote Y_a^E the average monthly income for beneficiaries employed after the program, Y_a^{SE} the average monthly income for beneficiaries self-employed after the program, and Y_b^U the average monthly income for all unemployed beneficiaries before the program.
- The implicit counterfactual is the baseline situation of the participants.
- As we have said before attributing the difference between in income before and after to the program is not realistic given that other events different from the program will also affect the change. Therefore, MCC has assumed that only a percent of the change can be attributed to the program, denote this by r.
- The percent of beneficiaries that do not complete the course is denoted by a, also referred to as attrition from the program.
- A percent of beneficiaries that completed the program will find permanent employment (denote it by p^E), another percent will be permanently self-employed (denote it by p^{SE}). The rest of completers will still be unemployed not will not receive any additional income due to the program.

- The number of beneficiaries served by the program up to time t is denoted by B_t and the cumulative number of beneficiaries served during the five years is denoted by B_T.

- Annual benefits are calculated with the following formula

$$((Y_a^E - Y_b^U)p^E + (Y_a^{SE} - Y_b^U)p^{SE}) \times B_t \times 12 \times (1 - a) \times \text{r}$$

Table 4 summarizes the assumptions made by MCC for the ex-ante ERR calculations for the non-formal training activity.

The ex-ante 20-year ERR calculated with the assumptions in Table 3 for the non-formal training activity, is 18.3 percent. The information obtained by this evaluation will allow us to calculate an ex-post ERR using actual data for the observation period and updated estimates on the benefits and costs of the program for the post-program period (that is, 15 years).

There are two approaches for calculating the ex-post ERR. First, we would verify if the values for the parameters initially assumed for the ex-ante calculation are supported by the data. For example, we can verify if the average income for employed after the program is $285 and $219 for the self-employed. In addition, instead of using the estimated expenditure for costs, we will use actual cost data from FOMILENIO to obtain more updated cost information. Second, we would propose a different model that takes into account other benefits that the evaluation measures. We will continue discussing these options with MCC in order to determine the best process to calculate an ex-post ERR.

TABLE 4
ASSUMPTIONS OF KEY PARAMETERS FOR ERR MODELS

Parameter:	Assumption:
C_1	$320,000
C_2	$318,000
C_3	$2,116,000
C_4	$2,723,000
C_5	$274,000
Y_b^U	$88
Y_a^E	$285
Y_a^{SE}	$219
r	35 percent
a	18 percent
p^{SE}	11.3 percent
p^E	8.0 percent
B_T	8,400

Source: ERR calculations provided to us by MCC

G. REPORTING PLANS

In August 2012, we will submit to MCC a short memorandum summarizing the findings from the beneficiaries that completed the courses by December of 2010, which will be interviewed one year after they completed the courses (December 2011). The last cohort to receive non-formal training will finish in March of 2012, and should be interviewed one year after completing the course (March 2013). In January of 2014, we will submit a final report of the findings from the non-formal training evaluation. Table 5 summarizes the tentative schedule of deliverables.

TABLE 5

SCHEDULE OF DELIVERABLES

Deliverable	Main Focus	Tentative Due Date[6]
Mid-term Analysis	Analysis of changes in labor market and income outcomes for beneficiaries that completed courses up to December of 2010.	August 2012
Final Analysis	Analysis of changes in labor market and income outcomes for beneficiaries that completed courses up to March of 2012.	January 2014

cc: Sabinela Alfaro (FOMILENIO), Vince Ruddy (MCC-El Salvador), Van Crowder (MCC-DC), Lorenzo Moreno, File

[6] The submission of the reports is dependent on our ability to receive the follow-up data at least four months before the due dates.