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Female Entrepreneurship in Mexico

Impact Evaluation of a Large-Scale Program to Promote Female Micro-Entrepreneurs

Report on Mid-term Results

June 2017

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Table of contents

1. Executive Summary

Starting in 2014, the Government of Mexico implemented the first large-scale program to support specifically female entrepreneurship. The intervention, Mujeres Moviendo México, is a program implemented by Crea Comunidades de Emprendedores Sociales, A.C. (CREA), a Non-Governmental Organization with six years of experience providing business support services for female micro-entrepreneurs, particularly in rural communities in Mexico, in collaboration and with funding from the Instituto Nacional del Emprendedor (National Institute of the Entrepreneur, INADEM).

The impact evaluation was agreed with INADEM as a strategic one because of two reasons. First, this was a novel program and there was a lack of rigorous evidence about its impact. Second, supporting female entrepreneurs is one of the key objective of the National Gender Strategy which occupies a special role as one of the three key pillars of the National Development Plan adopted by the current administration.

The Mujeres Moviendo México program provides business training and assistance to female micro-entrepreneurs. The particular intervention evaluated is a training program composed of a set of "hard skills" modules, covering business and financial literacy courses, and a "soft skills" component, providing personal initiative modules aiming at promoting a pro-active, self-starting, and persistent entrepreneurial behavior. The hard skills component of the training includes seven six-hour modules, that sum up to a total classroom time of 42 hours, and it is complemented by the soft-skills sessions that last three weeks, with a total classroom time of 18 hours.

Parting from the fact that 47.7% percent of the occupied population of Mexico is employed by micro-enterprises, and that two factors that are believed to limit their success and growth are the lack of access to credit and the lack of managerial skills (Bruhn et al. 2011), the study conducted aims at answering questions relevant to address the needs of female micro-entrepreneurs in the country.

- Does mixed business trainings, that include "hard skills" modules as well as "soft skills" content targeting personal initiative and entrepreneurial behavior improve business outcomes (sales, profits, size and probability of survival)?
- Do these effects depend on the initial set of skills that women have before the training?
- Do the business literacy courses allow agents to improve their market decisions and efficiently allocate between keeping a business open or moving to the labor market?
- What mechanisms affect the business outcomes?

From the start, the implementation of the program was accompanied by an effort to evaluate its impact through an experimental approach (Randomized Controlled Trial – RCT) that consists on randomly selecting individuals into control (a group of entrepreneurs which does not receive the training) and treatment groups (receives the training) that are, by construction, statistically

identical by eliminating any type of selection bias. The differences in ex-post outcomes between these two groups can therefore be attributed to the effect of the program.

Through governmental official channels of communication and invitations by local allies of CREA, women were encouraged to visit the Mujeres Moviendo México centers in order to learn more about the training. After learning about the program, the entrepreneurs interested in participating had to answer a baseline questionnaire and waited to hear if they had been selected to attend the trainings. The evaluation was designed to test the impact that the training has on the beneficiaries at different stages after they take the treatment. The study was designed to assess the results in the mid-term, through the implementation of a short-survey about 7 to 9 months after the training, and in the long-term, about 18 months after the training.

In this report we present the results in the mid-term, corresponding to the first survey, which will be further enriched once we receive the data from the long-term survey. The future inclusion of the long-term results, will give us perspective on the evolution of the impact of the training, its sustainability, as well as more detailed information on the channels through which women improve their businesses, thanks to a more detailed follow up questionnaire.

Our starting hypothesis was that through the trainings, the entrepreneurs would have learned the most important business concepts and, therefore, would become able to adopt more modern management practices. In addition, we expected that through the personal initiative training, the entrepreneurs would gain a more proactive attitude, which would be reflected in additional investement into their businesses, a stronger capacity to bootstrap themselves and access finance, the introduction of new products, business and organizational practices, and a greater level of formalization.

Preliminary mid-term results are consistent with our logical framework. In fact, we observe that women invited to the trainings acquire a higher knowledge on business-related concepts that those in the control group, and we see as well higher scores on business management indexes that measure the formal management practices adopted. These finding prove relevant since, according to the literature, these practices are closely related to revenues and productivity (Bloom 2013b, Mckenzie & Woodruff, 2014).

Moreover, we identify that women from the treatment group are more likely to formalized their business, close and have more access to financing channels. This result is especially important considering that, according to the literature, financial constraints are one of the main factors that prevent small firms from expanding.

We also find an increase of about 10% in weekly profits for the entrepreneurs in the treatment group, which is accompanied by an expansion of their business measured by a higher inputs expenditure, higher expenditures on salaries paid as well as an expansion of paid workers. Furthermore, we find that women participating to the program increase their view about the value of their businesses, measured by their opportunity cost of closing their business or their expected wage in the labor market. At the same time, we see that entrepreneurs participating to the program

seems more likely to close their businesses, we interpret this as a result of the higher awareness about their capacity and the needs to profitably run a business, but we don't see an increase in the probability of dropping out of the economically active population or working less. This result, coupled with the one mentioned earlier about the higher opportunity cost of closing their business, and a higher expected salary when asked their expectations if they were to move to the labor market, suggest an improving in the awareness of their capacities and self-worth, and possibly signal an improvement in allocative efficiency as the women moves towards activities where their opportunities are likely to be higher (i.e. entrepreneurship or labor market).

Our cost-effectiveness analysis suggests that the program is clearly cost-effective. In fact, the cost per woman as estimated by CREA is 5000 pesos, (approx. US$ 270) which, given the estimated returns as measured by the increase in their weekly sale, would be recovered after about 8 months.[1] In addition, given the finding about the increase in the number of paid workers we calculate that the cost per additional job created through the program is about US $2200.

In the study, we go beyond assessing the average impact of the program and we perform also some additional heterogeneity analysis aiming at identifying if the results differ for women that had initially different skills levels. Interestingly, we find that high-skilled entrepreneurs and low-skilled entrepreneurs benefit in the same measure from the program.

The policy relevance of these findings is that the program is having a positive effect in the overall performance of the entrepreneurs' businesses, and that the effect are positive regardless of their initial set of skills.

Complementing the impact evaluation study, we also exploited the rich baseline data to identify characteristics and needs of female micro-entrepreneurs. In this report, we also present the results of an additional analysis carried to identify the differences between entrepreneurs in sectors traditionally dominated by women vs those in sectors dominated by men (which we identify as cross-overs). We find that these women entrepreneurs in male-dominated sectors have substantially higher profits and business outcomes than those in "feminine" sectors. These differences are not just statistically significant but also very large. In fact, we find that revenues for cross-overs is over 200% higher than for the other female entrepreneurs, and profits are 230% higher. We do find that these women come from less disadvantaged backgrounds, as can be deduced from the smaller households and higher personal education and the education of the parents. These results suggest that going forward, it can be very important to better understand how to encourage crossover. In order to do so, we have included additional questions for the long-term follow-up focusing on mentorship and role-models, and how the women entered into these sectors in order to provide more evidence about the pathways leading to these successful cross-over.

[1] If we look at the impact of profits per week (174 pesos) and we estimate a very conservative total of 30 full working weeks per year the estimated returns in terms of profits are 5220 pesos.

2. Introduction

This report discusses preliminary results from the impact evaluation of a large-scale female entrepreneurship program. This is the first large-scale program that the Government of Mexico implemented to support specifically female entrepreneurship and was funded by INADEM. The impact evaluation was agreed with INADEM as a strategic one given the novelty of this program and the importance of supporting female entrepreneurs in the context of the National Gender Strategy, one of the three key pillars of the National Development Plan adopted by the current administration.

In this report, we present results based on a mid-term follow up survey as the results from the long-term follow up survey are not available because data from the last follow up are still being collected.

In addition to the results from the evaluation, the report analyzes the results from the baseline survey which focused on the following question:

1. What are the drivers and implications of "exceptional" women entrepreneurs who managed to break into "male dominated sectors"? Building on recent evidence emerging from studies conducted by the World Bank Gender Innovation Lab this analysis suggests the importance of understanding better the characteristics and drivers of those female entrepreneurs that manage to break into "male dominated" sectors as a crucial determinant explaining the profitability (and productivity) gap between male vs female entrepreneurs appear the sector in which the business operates.

3. Country Context

Microenterprises are a crucial source of employment in developing countries, and Mexico is no exception. In fact, about 47.7 percent of individuals in Mexico are employed in microenterprises and another 18.2 percent is employed by small businesses as defined by the Encuesta Nacional de Ocupación y Empleo (2016).[2] These businesses, despite its prevalence, usually tend to stay small and have low productivity.

2 Micro-entreprises are considered as business with 1 to 15 employees for the industry sector, and 1 to 5 employees in retail and services sectors. Small businesses, which are defined as those having 16 to 50 in industry sector, and 6 to 15 for the retail and services sectors, employ another 18.2% of individuals. This fraction comes from the Encuesta Nacional de Ocupación y Empleo (ENOE) for the fourth quarter of 2016, and is based only on individuals employed in non-agricultural firms (available at:

Two aspects that are widely believed to limit the expansion and success of this type of businesses are the lack of access to credit and the lack of managerial skills (Bruhn et al. 2011). Given this, many programs aimed at fostering the performance of micro and small businesses have focused mainly on providing credits or business grants, or offering business and financial training.

Among the programs focused on improving managerial skills, two types of interventions have been examined: i) providing medium-large managers with external consulting services (Bloom et al. 2013b) and ii) providing business and financial training directly to micro-entrepreneurs (Karlan and Valdivia, 2011; Drexler, Fischer and Schoar, 2011; and Calderón, Cunha and De Giorgi, 2013). While the evidence on the first type of interventions is currently positive, but very limited, evidence on the second type of programs is disappointingly mixed, especially for female entrepreneurs (Mckenzie and Woodruff 2014). The main idea behind these interventions is not only that managers and business owners lack certain abilities, but also that given a high degree of uncertainty, and limited information about them, small and micro entrepreneurs are unlikely to actively search for providers to support them in improving these types of managerial skills. Accordingly, offering specific training can improve business outcomes such as sales, profits and survival probability.

Given the state of the current evidence, as discussed in Mckenzie and Woodruff (2014), key areas of knowledge gaps are: (i) running pilots with larger samples to better detect effects and evaluate heterogeneous effects, (ii) testing which elements of training content matter, (iii) designing experiments in order to measure spillovers. This evaluation is very important because it aims at contributing specifically to the first two of these knowledge gaps. Given the sample size of this pilot, this evaluation could allow evaluating whether the effects are stronger for different "types" of women. Specifically, we focus on differences between female entrepreneurs with high skills vs those with low skills.[3] Second, building up on previous work (Calderon et al 2013) that evaluated the impact of only providing business literacy contents (i.e. managerial "hard skills"), this evaluation also sheds light on the effect of adding personal initiative courses, "soft skills", as part of a training program.

In Mexico, public policies aimed at encouraging entrepreneurship as a key factor to foster economic development have gained importance in the past few years. However, it can be argued that with business training programs there is the risk to create a constraint for micro entrepreneurs that are underperforming in their business to move into the labor market, where they could potentially be more productive. Studying how different types of entrepreneurs, especially low skilled ones, respond to this type of programs can allow policy makers to assess if low skilled female entrepreneurs recognize their deficiencies and decide to move out of entrepreneurship into the labor market or not.

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http://www.inegi.org.mx/saladeprensa/boletines/2017/enoe_ie/enoe_ie2017_02.pdf, consulted May 09, 2017).

3 Skills are defined through an index which captures: (i) level of formal education of parents, (ii) level of formal education of the entrepreneur, (iii) cognitive skills measured through the "Raven test" and the "Digit span Recall Test".

4. Research questions

Specifically, the evaluation was designed to address the following research questions:

i. Does a package of support services that mixes business training ("hard skills") and personal initiative ("soft skills") improve business outcomes (sales, profits, size and probability of survival)? Until now the literature has mainly focused on business training ("hard skills") and not explicitly evaluated the value added of including "soft skills" abilities (Karlan and Valdivia, 2010; De Mel, McKenzie and Woodruff, 2008a and 2008b; Calderón, Cunha and De Giorgi, 2013).

ii. Are these effects different for high-skills and low-skills female entrepreneurs? The literature has analyzed separately if business literacy (Karlan and Valdivia, 2010; Bruhn, Karlan and Schoar, 2012; Bruhn and Zia, 2013; Drexler, Fischer and Schoar, 2011; and Calderón, Cunha and De Giorgi, 2013) improves the performance of small firms. However, this study sheds light on the question of whether targeting a specific type of entrepreneurs (those with high cognitive abilities) is a more effective strategy.

iii. Are business literacy courses allowing agents to learn about their entrepreneurial type and improve their market decisions? Calderón et al. (2013) provided suggestive evidence that entrepreneurs with low abilities are more likely to close their firm in the short term. The design of this intervention allows to verify if low-skills entrepreneurs behave differently after taking a business literacy course, and make different decisions on whether keeping their business open or trying to become employees, in contrast with high-skills entrepreneurs. The paper will contribute to shed additional light on the selection mechanisms proposed by Karlan, Knight and Udry (2012).

iv. A further contribution of this evaluation is that it would explicitly focus to detect which specific mechanisms are indeed affecting the business outcomes. This was achieved through a survey which contains detailed information about soft-skills, management, usage of accounting methods and knowledge about prices, income and costs can allow us to estimate which abilities changed the most and for which type of women. These indicators, that build on previous work by Fafchamps and Woodruff (2014), take into account information on entrepreneurial behavior that can be as specific as knowing if the women has researched the competition's supply and prices, or if she has talked to ex-clients to know why they stopped buying her products or services. (Baseline and follow-up surveys can be found in the annexes of this document).

5. The Intervention

The evaluation consisted of a randomized controlled trial (RCT) targeting female micro entrepreneurs in different states focusing primarily on eight urban areas in Mexico and neighboring areas: Aguascalientes, Ecatepec, Iztacalco, Irapuato, Naucalpan de Juárez, Nezahualcoyotl, Querétaro and Toluca.[4] The focus on multiple, and different areas, has been important as it has served to obtain crucial information for scaling up by providing additional external validity than if only implemented in one specific location. The target population of the project are female entrepreneurs, in urban and semi-rural areas, with small businesses with less than 5 employees and an income of less than 4 million Mexican pesos.

The intervention, Mujeres Moviendo México, is a program implemented by Crea Comunidades de Emprendedores Sociales, A.C. (CREA), a Non-Governmental Organization with six years of experience providing business support services for female microentrepreneurs, particularly in rural communities in Mexico, in collaboration and with funding from the Instituto Nacional del Emprendedor (National Institute of the Entrepreneur, INADEM). The program provides training and assistance to female microentrepreneurs. The intervention evaluated is a training program which includes: (i) business and financial literacy courses ("hard skills"), and (ii) a personal initiative training ("soft skills").

This training program consists of 8 courses each addressing a specific topic, where seven are focused on developing hard skills and one on soft skills aiming at improving the performance of the female micro-entrepreneurs. Each hard-skills course consists of six hours, which are delivered in two three-hour sessions per week. The soft skills course lasts three weeks, with a total classroom time of 18 hours.

In the courses focused on developing hard-skills we consider three courses as core:

- Cost calculation
- Determination of prices
- Marketing.

The other courses cover legal and fiscal regards, organization and production, sales strategies, and business planning.

The soft skills program aims to guide entrepreneurs to preserve and gain competitive advantage in order to be one step ahead of competitors, by promoting:

- Self-starting behavior
- Future orientation
- Persistence against obstacles

[4] These urban areas were selected by the INADEM of the Secretaría de Economía. In addition, these urban areas might also have rural or semi-rural areas adjacent to them, which might also be selected for treatment.

Further details on the content of each module are provided in Section 7 (program implementation).

Given that most of the entrepreneurs are unable to attend all the sessions, based on discussions with the implementing partner, we considered a complete training to be one that covers at least three hours for each of the core courses of the hard skills set, and at least 60% of attendance of the soft skills course.[5] For the purpose of this evaluation, we will focus on the impact of the training on the intent-to-treat group, considering all women who were assigned to the treatment group and regardless of their take-up status.

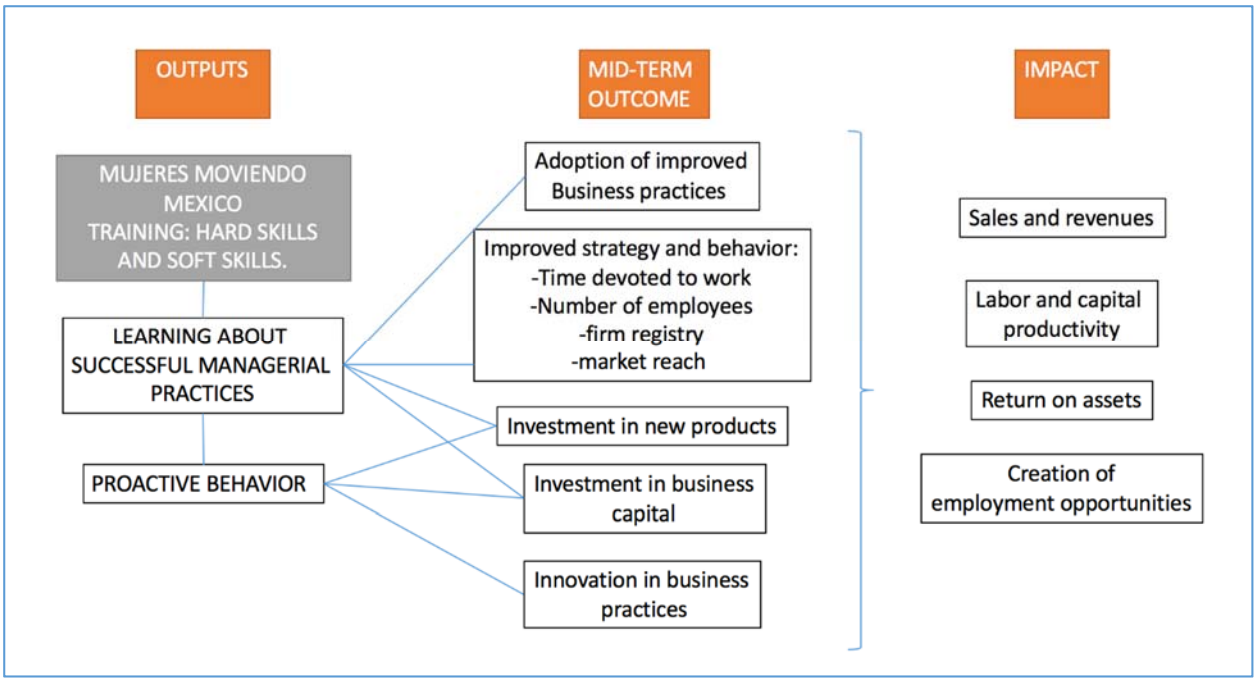
6. Causal Chain

The logical frame for Mujeres Moviendo México trainings builds upon the fact that a set of hard skills plus soft skills trainings can, on one hand, enhance entrepreneurs' knowledge on how to effectively run a business and encourage them to adopt more profitable business practices. On the other hand, these training can make the entrepreneurs adopt an active approach to their businesses in order to pursue innovation and to seek for solutions to the problems their businesses may face.

Under this framework, as Figure 1: Theory of Change for Mujeres Moviendo México., after the trainings, female entrepreneurs learn the most important business concepts and, therefore, should be able to adopt more formal management practices, and to gain a more active attitude which includes investment into their businesses, the introduction of new products, business and organizational practices, and a greater level of formalization. In the long term the learning and adoption of practices should lead to improvements in business outcomes such as sales, profits, labor productivity, returns on assets and employment creation.

Figure 1: Theory of Change for Mujeres Moviendo México.

[5] For the purpose of the evaluation this is not going to make any difference given that all the results reported focused on the ITT (i.e. Intention to Treat).



In order to follow this causal chain, we analyze our results by grouping them in the following way:

- Level 1: Hard skills learned
- Level 2: Adoption of practices
- Level 3: Business performance – variables related to strategy and behavior
- Level 4: Business performance – outcome variables on sales, profits, and expenditure.

7. Methodology

A. RCT and target population

For the evaluation of Mujeres Moviendo México, we designed two experiments, involving the same intervention and two different target populations. In both experiments, we adopted an experimental approach which consists on randomly selecting individuals into control (a group of entrepreneurs which does not receive the training) and treatment groups (receives the training) that are, by definition, statistically identical by eliminating any type of selection bias. The differences in ex-post outcomes between these two groups can therefore be attributed to the effect of the program.

In the first experiment, the population of interest is based on a universal block enumeration in areas characterized by high density of businesses. We refer to this as a "non-selected sample" as women are first interviewed, through a complete block enumeration, and then offered to participate to the program if they fall into a "treatment block". In this first experiment, the unit of randomization was at the "block" (AGEB) level.

In the second experiment, the population of interest consists of female entrepreneurs who heard about the program and went to the local offices of CREA to enroll. Accordingly, we defined this as "selected sample". Through a randomization done at the individual level, out of those that go to the CREA center to enroll, half are offered the program.

The first experiment was affected by implementation problems mainly caused by the fact that the original block enumeration covered many entrepreneurs that could not be localized in a second stage when the CREA staff attempted to re-contact them to invite them to the training program, as well as by a very low take-up rate (less than 10%). Therefore, the rest of the report will focus on the results of the second experiment, which ended up having a substantially larger sample as it included 3,955 female entrepreneurs (half of which were invited to the program, with an almost 50% take-up). Information on experiment 1 is included in Appendix 1Apart from the methodological and implementation considerations, a crucial reason why we focus in this report on the second experiment is because we think that this is much more relevant for policy makers in Mexico as it is exactly this the type of entrepreneurs that are likely to be interested in participating in a scaled-up version of the program.

B. Randomization

The steps followed to carry out the experiment have been the following:

Step 1: All women who approached a Center of Mujeres Moviendo Mexico had to complete a survey. This baseline survey was administered both by trained enumerators and selected trained employees at Mujeres Moviendo México Centers. The data is self-reported and gathered through face-to-face surveys.

Some of those women approached the Centers because they heard about the program through the governmental official channels of communication (such as TV and radio advertisings, printed propaganda and entrepreneur's fairs). In some other cases, women were invited through local allies of CREA interested in having trainings imparted at certain communities, who launched local campaigns to advertise CREA and to convince women to join the program.

The baseline questionnaires (Appendix 2) for both experiments collected information on the following areas (Defined in detail in sub-section D – Key Findings, and in the Results section of the present document):

- *Initial characteristics of her business.*
- *Current characteristics of her business.*
- *Managerial practices*
- *Sold products questions.*
- *Assets.*
- *Purchased inputs and intermediate goods.*
- *Time use.*
- *Profits use.*

- *Savings and credit information.*
- *Growth orientation.*
- *Perceived obstacles.*
- *Cognitive ability*: digit span recall and Raven tests.
- *Soft skills and attitudes*: attitudes toward risk, self-efficacy, locus of control, self-confidence, ability to trust. These questions are based on Fafchamps and Woodruff (2014) and also include questions discussed in Gamberoni, Iacovone and Posadas (2013).
- *Socio-demographic characteristics*.

Step 2: After having gathered and surveyed a group of approximately 50 women in a given Mujeres Moviendo México Center, treatment and control groups were randomly selected, stratifying across education level, parent's level of education, Raven and digit span tests, weekly sales and weekly profits. The baseline survey allowed us to classify entrepreneurs as low-skills entrepreneurs (LSE) or high-skills entrepreneurs (HSE), by creating an index using Principal Component Analysis (PCA) of an index that includes level of education, a score from a Raven test and a score from a digit span test. The unit for this randomization was the individual entrepreneur within stratified groups based on high vs low cognitive capacity.

Step 3: Women assigned to the treatment from each *strata* were organized so that they took the training simultaneously. In some cases, when women dropped out or did not attend the training sessions with their corresponding group, they were encouraged to return and incorporated into recuperation groups covering subjects they had not completed.

The balance for these observations comparing treatment and control groups at baseline are shown in *Table 1* and the results indicate that the randomization was successful as the characteristics of female entrepreneurs in the control group and of those in the treatment group are statistically similar. We are able to reject for nearly all the variables the hypothesis that the two groups differ except in one characteristics, the indicator variable "able to do accounting". This conclusion is confirmed by the results of the joint-orthogonality test for which we obtain a p-value of 0.83, thus we cannot reject the null hypothesis of balance.

Table 1: Balance on baseline data

	VARIABLES	Control mean	Treated mean	Difference	Observations		VARIABLES	Control mean	Treated mean	Difference	Observations
(1)	Total index	0.459	0.4469	**-0.0121**	3,091	(19)	Market reach	1.307	1.3232	**0.0162**	3,085
				(0.00793)						**(0.0228)**	
(2)	Management index	0.454	0.4435	**-0.0105**	3,091	(20)	Sales per day winsorized	1475	1428.25	**-46.75**	3,008
				(0.00797)						**(108.8)**	
(3)	Modern pricing methods	0.778	0.7622	**-0.0158**	3,096	(21)	Sales per week winsorized	3749	3503.9	**-245.1**	2,957
				(0.0151)						**(222.5)**	
(4)	Accounting methods	0.726	0.7032	**-0.0228**	3,096	(22)	Profits per day winsorized	572.9	543.57	**-29.33**	2,916
				(0.0162)						**(39.19)**	
(5)	Able to do accounting methods	0.548	0.5109	**-0.0371****	3,096	(23)	Profits per week winsorized	1428	1326.5	**-101.5**	2,890
				(0.0180)						**(82.15)**	
(6)	Composite Business Practice Score	0.460	0.4487	**-0.0113**	3,090	(24)	Salaries paid per month winsorized	848.8	861.34	**12.54**	3,043
				(0.00802)						**(126.0)**	
(7)	Management - marketing index	0.429	0.416	**-0.0130**	3,093	(25)	Inputs expenditure per month winsorized	7347	7029.4	**-317.6**	2,827
				(0.00973)						**(550.9)**	
(8)	Management - stock index	0.578	0.5644	**-0.0136**	3,093	(26)	Wishes to grow	0.982	0.97512	**-0.00688**	3,085
				(0.0103)						**(0.00525)**	
(9)	Management - records index	0.510	0.4927	**-0.0173**	3,090	(27)	Maximum loan she could get	34014	37413	**3,399**	2,752
				(0.0114)						**(5,129)**	
(10)	Management - finance index	0.417	0.41098	**-0.00602**	3,094	(28)	Opportunity cost of closing business	7615	7550.92	**-64.08**	2,832
				(0.0106)						**(306.7)**	
(11)	Hours worked per week	35.27	34.061	**-1.209**	3,092	(29)	Salary expected in the labor market	5285	5510.5	**225.5**	2,862
				(0.956)						**(198.8)**	

	VARIABLES	Control mean	Treated mean	Difference	Observations		VARIABLES	Control mean	Treated mean	Difference	Observations
(12)	Days worked per week	5.300	6.167	**0.867***	3,086	(30)	Wishes to close business	0.123	0.1114	**-0.0116**	3,086
				(0.489)						**(0.0116)**	
(13)	Clients per day	13.93	13.956	**0.0260**	3,091	(31)	Sales and profit index	0.295	0.2758	**-0.0192**	3,055
				(0.691)						**(0.0164)**	
(14)	Products per day	30.52	30.723	**0.203**	3,089	(32)	Inputs and salaries per month index	0.0957	0.0922	**-0.00350**	3,088
				(2.123)						**(0.00741)**	
(15)	Number of workers	0.833	0.843	**0.0100**	3,060	(33)	Inputs salaries per month and workers index	0.0985	0.09563	**-0.00287**	3,096
				(0.0609)						**(0.00758)**	
(16)	Unpaid workers	0.189	0.1781	**-0.0109**	3,073	(34)	Total inputs and outcomes index	0.390	0.3672	**-0.0228**	3,096
				(0.0208)						**(0.0211)**	
(17)	Firm registry	0.242	0.2492	**0.00720**	3,073	(35)	Perception index	1.135	1.1234	**-0.0116**	3,096
				(0.0155)						**(0.0130)**	
(18)	Access to credit	0.257	0.25279	**-0.00421**	3,091						
				(0.0157)							

*Note: Sales, Profits, Inputs expenditure per month and Salaries paid per month are measured using Mexican Pesos.

Robust standard errors in parentheses - *** p<0.01, ** p<0.05, * p<0.1

Step 4: The first follow-up survey was carried out for both the treatment and control groups: between 6 and 9 months after the treatment was completed (or should have completed given our focus on "intention to treat"). In the cases in which women from the treatment group were incorporated into new groups to complete their training, the ending date of treatment was adjusted to the ending date of the latest group they participated in.

The mid-term follow-up (

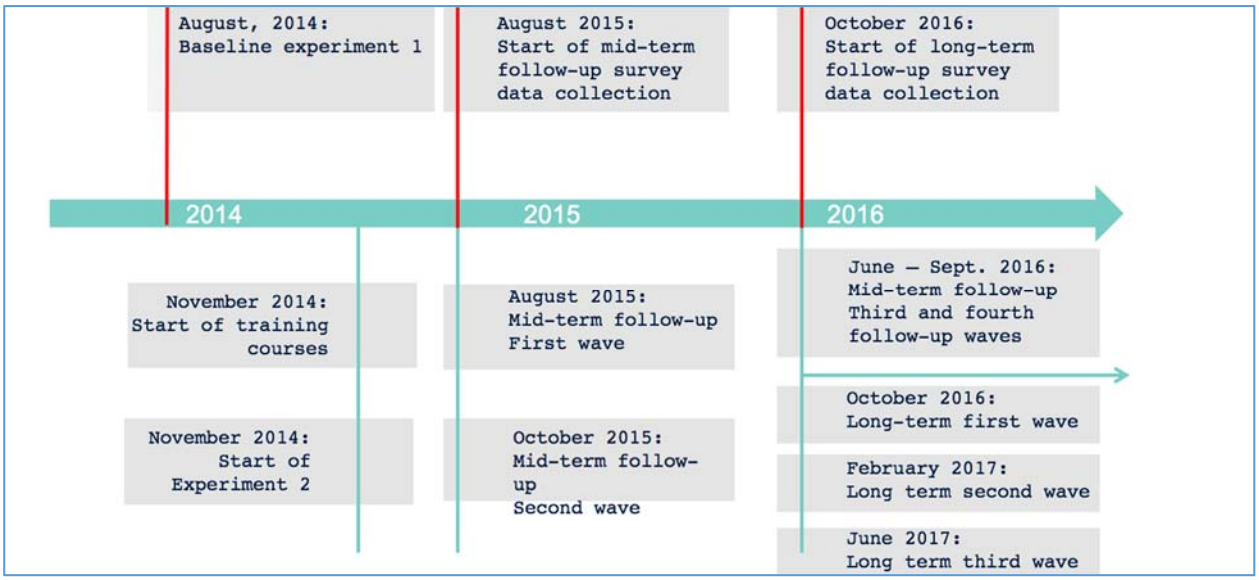
Appendix 3) is a shorter than the baseline survey and it covers current characteristics of the business, managerial practices, reported amount of total sales, costs and profits, as well as expenditure on inputs, time use, as well as additional sections on personal initiative and managerial knowledge using questions assessing the comprehension of the coursework covered by the trainings. Out of the 3995 interested in participating to the program (and for which we had baseline information) only 3,096 effectively answered the mid-term follow-up.

Step 5: The second follow-up survey was carried out for both the treatment and control groups 15-18 months after the treatment group of that stratum has completed the training program. Data has been obtained through three data collection waves, and is expected to be completed by September, 2017.

This long-term follow-up (Appendix 4) covers all the questions included in the baseline questionnaire, the additional section regarding a personal initiative assessment from the mid-term questionnaire, and a new section to assess the drivers explaining why an entrepreneur entered a specific sector of activity.

Figure 2 : Timeline of implementation and impact evaluation shows the timeline in which all the steps described have been implemented between 2014 and 2017.

Figure 2 : Timeline of implementation and impact evaluation



C. Descriptive statistics: baseline survey

According to the baseline survey, female entrepreneurs in our sample (Experiment 2), which covers 3995 individuals, are 42 years old on average and have in general a level of education of 11 completed years, corresponding to the second year of high school. Around 82% of them have no employees and the median value of their current capital stock is 9,000 pesos (470 USD). About

74% percent of the micro-entrepreneurs surveyed have not registered their business with any local or federal authority. 42% of them work in retail, 30% in services, and 28% in manufacturing.

Thus, the project targets entrepreneurs with small firms, most of them informal. However, when asked about whether they would like their business to grow, 97% responded affirmatively.

As shown in Table 2, when we compare the educational characteristics of the sample participating in this experiment with that of experiment 1, we find that in general this is a group with higher education and better educated families, as well as higher cognitive capacities. It is also a group with higher sales and profits (Table 3: t-tests comparing experiment 1 and experiment 2 – Performance variables).

Table 2: t-tests comparing experiment 1 and experiment 2 – Education

	Experiment 1			Experiment 2			Difference	
Variable	Mean	SD	N	Mean	SD	N	t statistic	P value
Years of education	8.61	4.17	10008	10.74	3.82	3883	-27.778	0.000
Years of education - father	4.44	4.52	9026	6.25	4.92	3528	-19.668	0.000
Years of education – mother	4.01	4.14	9324	5.67	4.58	3723	-20.016	0.000
Raven score	0.35	0.22	9713	0.47	0.22	3937	-27.284	0.000
Digit Span test score	0.41	0.19	10151	0.48	0.19	3943	-19.559	0.000

*Source: Baseline databases for experiment 1 and 2.

Table 3: t-tests comparing experiment 1 and experiment 2 – Performance variables

	Experiment 1			Experiment 2			Difference	
Variable	Mean	SD	N	Mean	SD	N	t statistic	P value

				Business practices				
Total index	0.32	0.20	10257	0.45	0.22	3947	-33.59	0.000
				Business performance: Strategy and Behavior				
Hours worked per week	48.10	17.97	10197	34.61	25.47	3947	35.39	0.000
Days worked per week	6.01	1.19	10115	5.65	12.63	3943	2.86	0.000
Clients per day	26.21	28.43	10198	13.80	19.14	3946	25.28	0.000
Products per day	30.68	30.73	10176	30.32	59.72	3944	0.47	0.000
Number of workers	0.38	0.88	10205	0.98	6.70	3907	-8.80	0.000
Unpaid workers	0.10	0.43	10264	0.28	6.41	3928	-2.85	0.000
Firm registry	0.42	0.49	10275	0.25	0.43	3927	19.11	0.000
Access to credit	0.14	0.35	10253	0.26	0.44	3947	-16.57	0.000
Market reach	1.01	0.14	10048	1.32	0.64	3937	-46.13	0.000
				Business performance: Outcomes and Inputs				
Sales per day winsorized	795.79	1120.82	9250	1543.53	3218.47	3834	-19.65	0.000
Sales per week winsorized	3646.46	4957.30	8596	3884.12	6614.10	3754	-2.20	0.000
Profits per day winsorized	304.02	454.33	8251	599.83	1157.41	3706	-20.03	0.000
Profits per week winsorized	1416.08	2015.44	8540	1458.61	2356.10	3656	-1.01	0.000
Salaries paid per month winsorized	496.32	1679.02	8652	974.53	3842.08	3885	-9.70	0.000
Inputs expenditure per month winsorized	7695.77	12524.	8486	7531.65	15257.46	3603	0.62	0.000
Sales and profit index	0.39	0.51	9578	0.30	0.49	3896	9.28	0.000
Inputs and salaries per month index	0.12	0.23	9977	0.10	0.22	3944	5.01	0.000
Inputs salaries per month and workers index	0.13	0.24	10274	0.10	0.23	3955	5.50	0.000
Total inputs and outcomes index	0.49	0.65	10275	0.40	0.64	3955	7.51	0.000
				Additional variables on perception				
Willing to grow	0.88	0.32	10241	0.98	0.15	3938	-17.69	0.000
Maximum loan available	178433.37	329650	5225	40630.67	218524.96	3510	21.76	0.000
Opportunity cost of closing business.	5963.47	6082.01	7897	7902.28	8564.24	3620	-13.88	0.000
Expected salary in job market	5044.06	5744.38	7768	5737.98	11302.40	3655	-4.35	0.000
Wishes to close business	0.16	0.37	10224	0.12	0.32	3939	7.27	0.000
Perception index	1.19	0.57	10275	1.13	0.36	3955	6.63	0.000

Note: Sales, Profits, Inputs expenditure per month and Salaries paid per month are measured using Mexican Pesos.
Source: Baseline databases for experiment 1 and 2.

Furthermore, that this is a very heterogeneous group as most of the performance variables exhibit high standard deviations. Even after winsorizing the 1% of the right tail, we find that in most of the key outcome variables concerning profitability and expenditure on inputs the standard deviation is around twice the value of the mean, and in some cases even higher, as shown below in *Table* 4.

Table 4: Summary of Business Performance outcomes (inputs and outcomes)

Winsorized variables

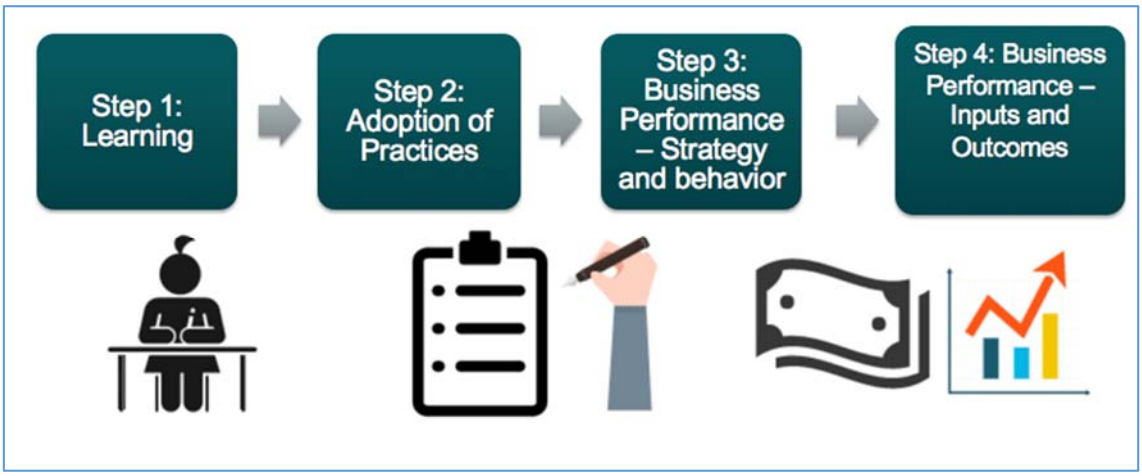
Variable	Mean	SD	N	P25	P50	P75
Sales per day	1543.53	3218.47	3834	260	600	1400
Sales per week	3884.12	6614.10	3754	750	1800	4000
Profits per day	599.83	1157.41	3706	100	250	500
Profits per week	1458.61	2356.10	3656	300	700	1500
Salaries paid per month	974.53	3842.08	3885	0	0	0
Inputs expenditure per month	7531.65	15257.46	3603	833.33	2600	7000

Note: Sales, Profits, Inputs expenditure per month and Salaries paid per month are measured using Mexican Pesos.

D. Key outcomes of interest

The main objective of the evaluation is to understand if, and how, the entrepreneurs and their businesses benefit from the soft and hard skills courses provided within the program. The instruments used allow us to analyze a wide range of variables that explain behavior and outcomes changes over time. As previously described, our hypothesis is that women first absorb the tools (learn), and then incorporate this knowledge to their businesses through updated management practices and habits (adopt practices), which can in turn increase their businesses' revenues and profitability (outcomes). Figure 3 summarizes this process.

Figure 3: Logical framework



Following this framework, we assess the impact of the program at four different levels measuring specific variables:

1) **Learning**

On the learning level, we analyze variables related to the knowledge provided by each of the hard-skills module of the training program. Concretely, through multiple choice questions on concepts taught through the course, we evaluate the following

- Business total knowledge (a normalized index comprising all the areas).
  - Business knowledge - calculation of costs.
  - Business knowledge - pricings strategies.
  - Business knowledge - legal and fiscal regard.
  - Business knowledge - organization and production strategies.
  - Business knowledge - marketing.
  - Business knowledge - sales strategies.
  - Business knowledge - business planning.

2) **Adoption of practices**

Regarding the adoption of management practices, we analyze the following indexes

- Total index – comprising all the questions related to management practices.
  - Modern pricing methods indicator.
  - Accounting methods indicator.
  - Able to do accounting indicator
  - Use of information and communication technologies (ICT).
  - Composite business practice score.
    - Marketing practices index.
    - Stock practices index.
    - Records practices index.
    - Finance practices index.

3) **Business performance – strategy and behavior**

- Has closed business – question considering whether she closed the business that she had when she answered the baseline questionnaire.
- Has opened a new & different business – analyzing if she changed the type of business she had when she answered the baseline questionnaire.
- Doesn't work – analyzing those who closed their businesses and are not working anymore in any activity with an economic remuneration.
- Personal Initiative basic index – considering the following components:
    - If she has done at least one change to improve her business in the last six months.
    - If she introduced new products and services.
    - If the main new product introduced was invented by her.
- New products and ideas – number of new products introduced for sale or new business ideas.
- Hours worked per week.
- Days worked per week.
- Clients and products sold per day.
- Number of paid and unpaid workers.
- Legal registry of the business.
- Access to credit channels (whether buying or selling with credit).
- Market reach – depending on whether she sells only in her neighborhood, or in other municipalities or even to other states.

4) **Business performance – outcomes and inputs**

- Daily and weekly sales and profits
- Expenditure on inputs and merchandise for sales
- Salaries paid
- Indexes concerning the important outcomes.

5) **Perception**

The perception variables do not correspond to a specific level but are relevant to the perception women have on their productive activities and reflect their expectations for their business.

- Wishes to have a bigger business (wishes to grow).
- Maximum loan that she believes she could acquire regardless of the source.
- Opportunity cost of closing her business and moving into the labor market defined as the lowest salary she would be able to accept to close her business and work in a salaried position.
- Expected salary if she were to move to the labor market
- Wishes to close business
- Perception index (comprising all the variables on perception).

6) Personal Initiative

- Quantitative score measuring amount and size of changes done to improve business
- Qualitative score measuring how active the entrepreneur was conducting those changes
- If she has done at least one change to improve her business in the last six months.
- If she introduced new products and services.
- If she wishes to grow

In order to understand if some women with certain cognitive and education characteristics benefit the most from the program, we also analyze each variable through a heterogeneity analysis depending on the classification of the women as high or low skills entrepreneur.

This study aims, on one hand, at evaluating if women change their attitudes and views towards their business through an analysis of their personal initiative. On the other hand, we analyze whether the courses accomplish their goal of increasing businesses' profitability and the entrepreneurs' income. By having a mid-term and a long-term survey, we are able to understand better whether knowledge transforms into outcomes over time, and whether the lessons learned from the trainings are applied and sustained over time.

An initial exploratory analysis using baseline observations was conducted with the goal of understanding the relation that personal initiative and management skills have with outcome variables. By looking at the impact of the normalized management index, as well as of quantitative and qualitative measures of personal initiative (normalized) on sales, profits and expenditures, we can see that there is a visible correlation between attitudes and practices and the business performance.[6]

The results shown in Table 5 indicate that the amount of changes implemented to improve a business during the last six months is positively correlated with higher weekly sales, profits (both daily and weekly), more salaries paid per month and higher expenditure. The qualitative aspect of the personal initiative score is also correlated with higher sales per day and per week, higher weekly profits, and higher expenditures.

Results also show that the management score explains much more of the performance of the business than the personal initiative measures. The management coefficient for sales per day is two times bigger that for the relation between personal initiative and sales, and for profits per day it is three times larger than the one for personal initiative quantitative score. Only for salaries per month, the coefficient found is higher for each of the personal initiative scores than for the management score.

[6] Since we do not have a measure of personal initiative in our baseline data, for this analysis we use the outcomes in the mid-term follow-up on the performance variables in the same time, using only those observation from women from the control group.

Table 5 Relation between personal initiative and management and performance variables

	Dependent variables					
	Sales per day	Sales per week	Profits per day	Profits per week	Salaries paid per month	Inputs expenditure per month
Personal initiative quantitative score normalized	1158.094	6689.426***	567.555*	2405.606***	3718.599***	8559.871*
	-859.207	-2177.041	-341.435	-721.919	-1056.607	-4983.959
N	740	709	715	688	765	653
Personal initiative qualitative score normalized	1107.556**	3553.528***	418.981	1658.038***	1117.617*	3031.373
	-551.502	-1348.576	-275.957	-477.234	-601.469	-2685.099
N	740	709	715	688	765	653
Management score normalized	3001.784***	8183.130***	1509.651***	3089.769***	3329.338***	10,000***
	(351.67)	(839.974)	(184.286)	(308.03)	(504.819)	(1708.351)
N	1205	1166	1164	1132	1239	1058

Robust standard errors in parentheses - *** p<0.01, ** p<0.05, * p<0.1

E. Power calculations:

The power calculations using baseline results for the main performance outcome variables are shown in Table 6. The first column shows the mean value of the outcome of interest, and the second column the standard deviation. The third column indicates the expected change on the variable after treatment. The last column in each table shows the number of total observations that it is required to obtain a power of 80%.

Due to the number of outliers in the variables measuring the number of workers, three variables (number of workers, number of paid workers and number of unpaid workers) have very high values of the total observations that would be needed to identify the expected change. However, most business have no employees as mentioned in the previous section.

For our main outcome variables, excluding those relating to employees and capital, between 1500 and 2600 observations are required, and in some cases even less. To identify a change of 20% in the total capital of the business, 5022 observations would be needed.

We have a sample of 3,995 observations, with 3,096 follow-up surveys out of which 2,598 are complete surveys (more on this on section 8),[7] that allows us to identify any changes in the main outcome variables if the change is at least 20%, with the exception of changes in capital

Table 6: Power calculations

	Mean	SD	Expected change	Total observations needed
Clients per day	12.96469	17.23032	20%	1388
Products per day	26.72419	47.51722	20%	2482
Number of workers	0.9761966	6.695613	20%	36926
Number of paid workers	0.4907196	2.990189	20%	29144
Number of unpaid workers	0.2777495	6.40501	20%	417390
Firm Registry	0.2513369	0.4338371	20%	2340
Sales per day	1318.727	2315.638	20%	2422
Sales per week	3486.008	5257.233	20%	1786
Profits per day	527.2411	900.0834	20%	2288
Profits per week	1313.997	1866.04	20%	1584
Inputs expenditure per month	6598.413	12163.46	20%	2668
Management total index	17.31644	8.082033	20%	172

Note: Clients per day, Products per day, Sales per day, Sales per week, Profits per day, Profits per week, and Inputs expenditure per month are trimmed at the 99 percentile.

[7] 2598 women answered the complete follow-up questionnaire. Those who closed their business and did not open a new one, do not have obsevations for these variables.

8. Program implementation

This section describes in detail the content of the training modules delivered to the treatment group. Mujeres Moviendo México is a non-governmental organization that delivers training, assistance, and networking opportunities to female micro-entrepreneurs through regional Centers. The Centers are financed through funding provided by local governments and INADEM, and are operated and administered by CREA.

The goal behind this project is to close the knowledge and economic gaps for marginalized female microentrepreneurs through a participation-based model. The program is designed to promote personal and professional development of the entrepreneurs to encourage them to become decision-maker agents that can place themselves as leaders in their businesses, homes, and communities. Besides the content shared in the classroom by trainers, additional services such as personal mentoring and guidance is offered, to incentivize them and aid them with applications to public and private financing opportunities.

Initially, the program was set to target the urban areas of Aguascalientes (city), Ecatepec (and Tlalnepantla), Iztacalco, Irapuato, Naucalpan de Juárez, Nezahualcoyotl, Querétaro (city) and Toluca, and the Mujeres Moviendo México Centers were established in each of those localities. At an early stage of the program, Naucalpan and Nezahualcóyotl Centers, due to low productivity, closed and merged with the Tlalnepantla Center. The remaining six Centers not only provided services to the municipalities in which they were established, but also delivered trainings to surrounding municipalities.[8]

At the end of the implementation of the first follow-up, Guanajuato's Center had to close due to a lack of funding from the local government, and by the last wave of the final follow-up, the Center of Mexico City had to close as well.

The schedule and location of the trainings is decided through participative processes taking into consideration the responsibilities and productive roles that women have within their enterprises and within their homes, and that can restrict the availability of the entrepreneurs due to time and commuting limitations.

[8] For example, in the Estado de México, the Center set up in Toluca delivered trainings to northern semi-rural municipalities such as Zinacantepec, Jiquipilco, and Ixtlahuaca. In Aguascalientes, groups were formed in the neighboring municipality of Jesús María. In Guanajuato, trainings were also delivered to León, San Luis de la Paz, Celaya and Salamanca. In Querétaro, groups were also formed in San Juan del Río, Pedro Escobedo, and Corregidora municipalities.

A. Hard skills training

The methodology for the hard-skills set of modules has been developed by CREA and is divided into seven main modules: 1) cost calculation; 2) prices determination; 3) legal considerations; 4) organization and production strategies; 5) marketing strategies; 6) sales strategies; 7) creation of a business plan.

Each session of the training program is imparted by personnel that has been trained and prepared to be able to properly cover the content of the session, to encourage participation and to address any doubts on the content.

The trainers have a professional and academic background in business administration, finance, or social sciences, and are required to have at least two years of professional experience working with female entrepreneurs and micro-entrepreneurs. They are also required to have experience in education. They are trained through a 40-hour course, that includes role-play exercises and mock-sessions, and this is reinforced each semester through a 24-hour additional training. They are supervised at least thrice every quarter, and the information gathered through the supervisions is constantly revised by the Methodology Area within the General Direction in CREA.

For each module of the seven hard-skills modules, a printed manual with concepts and definitions, real life examples, and in-class and take-away exercises is provided to each entrepreneur. The contents covered are the following:

- How to calculate costs – Has as general objective to teach how to maximize profits by calculating how to know the expenditure made to produce or sell, and include the following topics: learning the importance of money and administration; understanding what costs are; understanding fixed versus variable costs, and unitary costs; understanding production costs; understanding how to calculate profits.
- How to calculate prices – covers value added, organizational structures, processes mapping, investment decisions and how to reduce costs.
- Legal considerations – covers how to comply with legal and fiscal requirements, and what are the processes that need to be implemented to legally register their business. An important note is that while they are shown the benefits of registering their business such as access to federal and local business support opportunities; they are not forced to do so in order to continue with the program.
- Organization and production strategies – Covers the different ways to organize a business and to obtain the tools necessary to have an efficient production process. Introduces marketing notions, and how to brand their businesses.
- Marketing strategies – Addresses how to design a marketing strategy, including practical exercises, understanding the implications of promotion, prices and placing for their sales, as well as designing and thinking on how to define their brands.

- Sales strategies - Covers how to develop skills to interact and to create customer relationships in order to increase sales.
- Business plan - Accompanies them through an in-depth analysis of their enterprise to make a projection of goals and specific objectives for the following years.

B. Soft skills training – Personal Initiative

The methodology for the personal initiative training was developed by researchers from the University of Leuphana, Germany (The Frese Research Group, directed by Professor Michael Frese), and is based on psychological literature on personal initiative and action theory.

The objective of this part of the training is to motivate the entrepreneurs to adopt a personal initiative behavior characterized by three components: (1) it is self-starting, (2) it is a future-oriented vision, and (3) it is persistent.

Acting in a self-starting way means that individuals start actions themselves without waiting for instructions from outside or simply reacting to personal role requirements resulting from the various work roles (Frese & Fay, 2001). Future-oriented behavior involves the consideration of and preparation for possible future set-backs and opportunities (Frese & Fay, 2001). Showing persistence means that the individual confronted with a problem does not give up due to internal or outside barriers. Internal barriers are barriers inside of the individual, for example, frustration or lack of motivation to continue. Outside barriers are caused by the environment, for example, shortage of money or the lack of access to important information.

Entrepreneurs are encouraged to carry out changes to improve their business, prevent negative externalities from unexpected events, and to get ahead of their competition, and this is done through an analysis and internalization of the personal initiative principles.

The trainers have the same pre-requisites as a hard-skills trainer, but they need to have an additional certification by CREA that they can get after completing a 58-hour personal initiative training, in which no more than 14 trainers participate simultaneously. The first day of the training consists of an introduction to the methodology, the outline of the modules, and practical examples that could improve the learning process. The following 32 hours include a demonstration training, with role-plays, and through which the trainers get to prepare and present each topic and get feedback from the master-trainers. The last 18 hours are divided into three six-hour sessions in which a pilot training is provided to a group of entrepreneurs and after which additional feedback is provided to them. After the pilot, satisfaction questionnaires are completed by the entrepreneurs as well as an exercise in which they describe improvements they could apply to their business. Each quarter, trainers have to take an additional 16-hour training to reinforce them, and they are supervised at least once each quarter. All master-trainers have been certified by the University of Leupahana.

Initially, the personal initiative section of the course was taught after the seven hard skills sequence to complement the management tools the women had learnt. However, it was noted that these sessions gave women confidence and hooked them to the program in a positive way, and in order to prevent desertion, the order of the sessions was switched and personal initiative now precludes the hard skills set.

C. Take-up of the program.

From the 3,955 women, 2,030 were assigned to the treatment group, roughly 51% of the sample.

In an effort to increase take-up, women with incomplete treatments and those who did not join the course after being selected were re-contacted by CREA's personnel up to three times to encourage them to return and finish the courses they were missing.

The final status from those assigned to the treatment group is the following:

- 45% completed the program (918)
- 24% started but did not complete it (490)
- 10% signed up and registered but did not attend any sessions (209)
- 20% did not reach out to CREA again after being selected to the treatment group. (413)

The reasons for not completing the treatment, for those who were re-contacted, have been classified in the following way:

- 1% Was not in the business when re-contacted (2)
- 2% When they were re-contacted, the business did not exist anymore (6)
- 2% Interested but could not attend at the time (6)
- 83% Not interested in attending (299)
- 12% Cannot be re-contacted with the personal data provided in survey (45)

In fact, all of those who never registered or attended any sessions (622), when re-contacted reported not to have any interest in the program, with the exception of 4 who could not be found with the data they provided. Through follow-up surveys, it was noticed that many of the entrepreneurs had the initial idea that by signing up to the courses they would get financial aid or credits to improve their businesses, so it is possible that many women who completed the initial survey and later on got more concrete information on the program, were disincentivized to join in.

Table 7 uses the baseline information of women who completed the mid-term follow-up survey and were assigned to the treatment group. We compare those who finished the treatment with those who didn't. We can see that, in general, women who attended the course had higher management scores, paid more salaries each month, were more likely to be registered and to have access to credit, and believe they can get higher loans. They also have a higher opportunity cost for closing their businesses and the expectation of a higher salary if they were to join the job market.

Table 7 Take-up analysis

	VARIABLES	No take-up mean	Take-up mean	Difference	Observations		VARIABLES	No take-up mean	Take-up mean	Difference	Observations
(1)	Total index	0.431	0.4637	0.0327***	1,620	(19)	Market reach	1.312	1.3338	0.0218	1,614
				(0.0110)						(0.0319)	
(2)	Management index	0.428	0.4622	0.0342***	1,620	(20)	Sales per day winsorized	1353	1508.7	155.7	1,567
				(0.0111)						(149.1)	
(3)	Modern pricing methods	0.764	0.7617	-0.00230	1,621	(21)	Sales per week winsorized	3358	3665.3	307.3	1,545
				(0.0212)						(290.4)	
(4)	Accounting methods	0.689	0.7186	0.0296	1,621	(22)	Profits per day winsorized	521.4	567.31	45.91	1,513
				(0.0227)						(53.61)	
(5)	Able to do accounting methods	0.519	0.5033	-0.0157	1,621	(23)	Profits per week winsorized	1296	1360.09	64.09	1,502
				(0.0249)						(109.9)	
(6)	Composite Business Practice Score	0.433	0.4659	0.0329***	1,618	(24)	Salaries paid per month winsorized	658.4	1082.4	424.0**	1,600
				(0.0112)						(174.2)	
(7)	Management - marketing index	0.394	0.4415	0.0475***	1,620	(25)	Inputs expenditure per month winsorized	7017	7042.13	25.13	1,467
				(0.0136)						(777.6)	
(8)	Management - stock index	0.557	0.5736	0.0166	1,620	(26)	Wishes to grow	0.975	0.974046	-0.000954	1,620
				(0.0141)							
(9)	Management - records index	0.478	0.5091	0.0311*	1,618	(27)	Maximum loan she could get	25367	50587	25,220***	1,432
				(0.0160)						(9,228)	
(10)	Management - finance index	0.397	0.4251	0.0281*	1,620	(28)	Opportunity cost of closing business	6777	8380	1,603***	1,489
				(0.0146)						(453.5)	

	VARIABLES	No take-up mean	Take-up mean	Difference	Observations		VARIABLES	No take-up mean	Take-up mean	Difference	Observations
(11)	Hours worked per week	34.40	33.682	-0.718	1,619	(29)	Salary expected in the labor market	5137	5906.2	769.2***	1,513
				(1.195)						(286.4)	
(12)	Days worked per week	6.117	6.222	0.105	1,617	(30)	Wishes to close business	0.117	0.1055	-0.0115	1,619
				(0.956)						(0.0157)	
(13)	Clients per day	14.32	13.557	-0.763	1,621	(31)	Sales and profit index	0.264	0.2888	0.0248	1,597
				(0.939)						(0.0224)	
(14)	Products per day	30.76	30.6754	-0.0846	1,621	(32)	Inputs and salaries per month index	0.0853	0.0997	0.0144	1,617
				(2.894)						(0.0105)	
(15)	Number of workers	0.783	0.907	0.124	1,608	(33)	Inputs salaries per month and workers index	0.0890	0.1029	0.0139	1,621
				(0.0932)						(0.0108)	
(16)	Unpaid workers	0.168	0.1893	0.0213	1,612	(34)	Total inputs and outcomes index	0.350	0.3866	0.0366	1,621
				(0.0289)						(0.0294)	
(17)	Firm registry	0.217	0.2825	0.0655***	1,620	(35)	Perception index	1.124	1.123238	-0.000762	1,621
				(0.0215)						(0.0177)	
(18)	Access to credit	0.219	0.2906	0.0716***	1,621						
				(0.0216)							

Note: Sales, Profits, Inputs expenditure per month and Salaries paid per month are measured using Mexican Pesos.

Running the joint orthogonality test, we obtain a p-value of 0.0079, confirming that those who take the course are significantly different from the rest of the population. This could have methodological implications for the interpretation of the TOT results (which can be found in Appendix 6), given that from baseline, those who take on the program have higher scores concerning management indexes, are more likely to be registered and to have access to credit, and pay higher salaries. However, we find both groups to be balanced in terms of the main performance outcome variables of interest (profits and sales).

9. Mid-term results

The mid-term survey aims to identify the effects that the course has on entrepreneurs on the short to medium term.

Out of the 3,955 women that were part of the study, 3,096 (78%) were successfully interviewed. As shown in *Table 8*, the response rate was higher for women in the treatment group, which is consistent with the fact that women from the treatment group tend to have a better relationship with CREA, and those from the control group resent not having been able to attend the courses.

A closer look at the reasons for rejection, looking at the descriptions provided by the enumerators, show that women from the treatment group reject answering the questionnaire because they had expected to receive financial support after finishing the courses.

Table 8: Response rate of mid-term survey

	Control		Treatment		Total	
Complete survey	1,475	77%	1,621	80%	3,096	78%
Incomplete survey	6	0%	5	0%	11	0%
Postponed survey	4	0%	2	0%	6	0%
Rejected	172	9%	146	7%	318	8%
Other reasons (mainly not-found)	268	14%	256	13%	524	13%

From those who completed the survey, 2,598 had either the same one or a new business (and therefore we have a complete survey for them), and 445 had closed their business without going into a new one.

We conduct an analysis to check the differences between women who completed the follow-up survey from those who did not (either because they rejected it or because they could not be re-contacted) using baseline values. We do this separately for (1) the control group, (2) the intention

to treat group (all women assigned to treatment), and (3) the complete take-up group (those who finished the training). Attrition balance tables can be found on Appendix X.

We find that, for the control group, women who did not answer the follow-up survey do not differ significantly from those who did in terms of business practices and strategies adopted in their business. However, they have statistically significant higher sales and profits, pay higher salaries, have a higher opportunity cost for closing their business, and have a higher expected salary in the labor market. When looking at the business performance indexes, we observe that they have higher scores in all of the indexes analyzed, meaning that in general, for the control group women who were found and surveyed had a lower performance according to the baseline data.

This pattern is repeated when we analyze business performance measures for the ITT and the TOT groups: women who were not found were those that in the baseline had higher sales and profits, and spent more on salaries.[9]

A. Results

To measure the effect of the program we estimate the effect of the intention to treat of the Mujeres Moviendo México program on women from experiment 2. Specifically, - we use the following ANCOVA econometric specification as suggested by Mckenzie (2012):

$$(1)\ Y_{i,t} = \beta_0 + \beta_T T + \beta_1 Y_{i,t=0} + \beta_2 Mbl_{i,t=0} + \beta_3 S_i + \epsilon_{it}$$

Where Y_{it} is the outcome of interest of female entrepreneur i in period t, T is a dummy that takes the value of one if the entrepreneur has been assigned to receive the business training program. The parameter βτ will measure the average effect of the business training program, the parameter β1 will measure the effect of baseline values. In order to increase our power, we will use an ANCOVA specification through which we can assign an arbitrary value to the baseline if a given observation has a missing value in the variable analyzed, and we control for it by including in the econometric specification $Mbl_{i,t=0}$, which is a dummy that takes the value of 1 when there is a missing value for the variable in the baseline. We also control for each individual randomization strata, S_i of, and ϵ_{it} is a classical error term.

[9] Analyzing the daily measures, the difference for those who answered and those who did not is higher for the control group, but in terms of weekly measures, this difference is higher for the treatment group. Moreover, those not found from the ITT group were more prone to using precise accounting methods, and to keep records. They also had a higher opportunity cost for closing their business. For the TOT group, we see that women not surveyed in the follow-up are also more prone to using accounting methods, but have a lower measure regarding stock management. They worked less days per week and had less unpaid workers. Regarding business outcomes, the weekly sales and weekly profits are also higher for those who did not complete the follow-up..

To test for heterogeneous effects, we include an additional dummy *HSE* that takes the value of 1 whenever the micro entrepreneur I is classified as a high-skills micro-entrepreneur, and the parameter θ will measure the additional effect for this kind of entrepreneurs:

$$(2)\ Y_{i,t} = \beta_0 + \beta_T T + \beta_1 Y_{i,t=0} + \beta_2 Mbl_{i,t=0} + \beta_3 S_i + \theta HSE^* T + \epsilon_{it}$$

For those variables that were not part of the initial follow-up survey, the following specification is used:

$$(3)\ Y_{i,t} = \beta_0 + \beta_T T + \beta_3 S_i\ \epsilon_{it}$$

Through this analysis we are measuring the impact on the Intention to treat group as a whole, meaning that we are identifying the average effect of the program on the whole treatment group, considering those who took the course, those who didn't complete it and even those who were invited but never attended it.

As outcome variables of interest, we use business performance measures, such as, weekly profits, sales, number of clients, number of products, investments, among others. Besides business performance measures, following our logical framework, we include changes in management behavior, changes in strategic behavior for setting up prices, using accounting methods, and knowing how to determine their income and costs. Therefore, we analyze the effects on learning, adoption of business practices, and final outcomes.

8.1 Results on learning.

The results on learning are measured through declarative knowledge questions that were included for the follow-up survey and that were designed by the Methodology team of CREA in order to cover the most important key concepts taught by the course. Nine multiple-choice questions were asked, each concerning a specific concept taught through the hard-skills set of the training, with one correct answer out of three possible responses. For example for the pricing strategies, it is asked which factors are important in order to establish the price of their products.[10] We analyze the results for each module, and we create an additional variable aggregating all the independent knowledge measures, the *Business Total Knowledge* measurement, which is normalized.

Results from the Table 9: ITT results on learning show that the Business Total Knowledge score is 0.0375 points higher for women from the treatment group. The highest effects are seen over cost and legal and fiscal modules with increases of .09 points each one, followed by the coefficient of 0.0846 points on sales strategies.

[10] To evaluate knowledge on the cost calculation and pricing strategies modules, two questions on concepts were included for each. For the rest of the modules, only one question was asked for each

Table 9: ITT results on learning

	(1) Business total knowledge	(2) Business knowledge - costs	(3) Business knowledge - pricing	(4) Business knowledge - legal and fiscal regards	(5) Business knowledge - organization and production strategies	(6) Business knowledge - marketing	(7) Business knowledge - sales strategies	(8) Business knowledge - business planning
treated	0.0375***	0.0474***	0.0161	0.0937***	0.0205	0.0136	0.0846***	-0.00180
	(0.00794)	(0.0117)	(0.0123)	(0.0173)	(0.0163)	(0.0125)	(0.0176)	(0.0130)
N	3093	3093	3093	3093	3093	3093	3093	3093
control mean	0.6178	0.7427	0.3797	0.4942	0.6773	0.8461	0.4610	0.8366

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

8.2 Results on business practices.

To identify the impact of the training on managerial practices implemented by the entrepreneurs, we follow and build upon the work of Fafchamps and Woodruff (2014), creating management indexes that can be broken down into different categories, each of them addressing different types of managerial abilities.

The *Total Index* is a measure that aggregates all the different sub-indexes. It includes: (1) an indicator on basic pricing practices, *Modern Pricing methods,* that indicates whether the entrepreneur uses adequate pricing methods such as estimating a mark-up or taking into account the market-prices, or if she tends to follow other methods such as keeping prices established by suppliers or bargaining with customers; (2) A self-reported indicator on her ability to estimate her profits and costs, *Able to do accounting*; (3) An indicator on accounting methods, *Accounting Methods,* which takes the value of one if she reports to have and use written records or another formal method of accounting for her business; (4) a self-reported indicator on the use of Information and Communications Technologies), *ICT use* (namely e-mail and internet for their business); and a Composite Business Score.

The Composite Business Score is composed by 22 yes or no questions asked to the entrepreneurs on specific managerial practices. It can be broken down into four measures: financial planning score, records score, stock score and marketing score All variables are normalized for the analysis.

As Table 10: ITT Results on business practices shows, a positive effect of 0.0674 points on the total index is found for women who take the course. When we break this index into its components, we observe that the coefficients are positive and significant in all the cases. The management index exhibits a positive effect of 0.0631 points, which can be further broken down into four sub-indexes regarding records, finance, marketing and stock management. The effects of treatment over these four management practices ranges between 0.0395 and 0.0806 points, with records management as the practice that shows the highest coefficient. Analyzing the rest of the components of the Business Practices index, we observe that the two variables that measure accounting methods exhibit the highest effects (0.101 and 0.127 points).

Table 10: ITT Results on business practices

	(1) Total index	(2) Modern pricing methods	(3) Accounting methods	(4) Able to do accounting methods	(5) Management index	(6) ICT use
treated	0.0674***	0.0331**	0.101***	0.127***	0.0631***	0.0435**
	(0.00752)	(0.0134)	(0.0158)	(0.0159)	(0.00763)	(0.0170)
N	2592	2600	2600	2600	2592	2572
control mean	0.5044	0.8331	0.7184	0.7089	0.4970	0.3424

	(7) Composite Business Practice Score	(8) Management - marketing index	(9) Management - stock index	(10) Management - records index	(11) Management - finance index
treated	0.0633***	0.0549***	0.0395***	0.0806***	0.0647***
	(0.00768)	(0.00970)	(0.0109)	(0.0109)	(0.0111)
N	2583	2595	2588	2589	2597
control mean	0.5026	0.4451	0.6456	0.5906	0.4520

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

8.3 Results on business performance – Strategy and Behavior

We continue the analysis looking at the results for variables related to work, strategy and business performance.

The first variables analyzed are related to the general changes in the business of the entrepreneur between baseline and follow-up (section C of the mid-term questionnaire). We look at the decision of keeping the business open or closing it and not opening a new one, so the variable (1) *Has closed business* takes the value of 1 if the entrepreneur doesn't have a business of her own when

the follow-up survey is applied. We also analyze if the entrepreneurs changed the type of business (2) *Has opened a new and different business,* or if (3) they closed their business and are not participating in any other economic activity.

Through the analysis of the intention to treat group, as **Error! Reference source not found.** shows, we find that women from the treatment group are more likely to have closed their businesses, which can be an indicator of self-awareness of the feasibility and profitability of maintaining their businesses open against going into the labor sector. While a potential concern could be that women could be pushed out of the economically actie population, we do not find a significant change on the (3) *doesn't work* variable. This indicates that there is no significant difference between women from the control and the treatment group on the probability of not currently participating in any economic activity.

We then look at other measures of innovation by building a simple *personal initiative index* (4) that considers whether the entrepreneur carried out at least one change to her business to improve it in the last 6 months, introduced new products or services in the same period, or invented a new product. This index can range from 0 to 3. We also look at how many new products and ideas the entrepreneurs have had for her business in the last six months (5). We find no significant effects for any of these variables.

We also analyze the working strategies that women employ for their businesses, namely (6) the *hours worked per week*, (7) *days worked per week*, (8) *clients* and (9) *products sold per day*,[11] and (10) the number of employees (besides the entrepreneur) that participate in the business, either (11) paid or (12) unpaid. All of these variables are measured in levels and are self-reported.

We see that women sell more products per day (on average 1.6 more products) and have, in general, more paid workers although they work less days in their business, which can be an indicator of increased efficiency.

Firm registry (13) is defined as a dummy taking the value of 1 if the entrepreneur has registered her business legally, *Access to credit* (14) is a dummy that takes the value of 1 if the entrepreneur either buys or sells using, and *market reach* (15) is a categorical variable which takes the value of 1 if the entrepreneur only sells in her neighborhood, the value of 2 if she also sells in other municipalities, and the value of 3 if she sells in other cities or states.

Women from the treatment group are more likely to have a formal registry and also have more access to financing channels (they either buy or sell using credit). (Table 11)

[11] Clients per day and products per day are winsorized variables.

Table 11: ITT results on business performance – strategy and behavior

	(1) Has closed business	(2) Has opened a new & different business	(3) Doesn't work	(4) PI basic index	(5) New products and ideas	(6) Hours worked per week	(7) Days worked per week	(8) Clients per day
treated	0.0213*	-0.00584	-0.00247	0.0133	-0.0710	-0.390	-0.130*	0.264
	(0.0125)	(0.00635)	(0.00927)	(0.0338)	(0.274)	(0.858)	(0.0767)	(0.654)
N	3090	3090	3090	3093	3026	2561	2578	2588
control mean	0.1317	0.0353	0.0740	1.1858	6.5458	36.5028	4.9314	14.3095

	(9) Products sold per day	(10) Number of workers	(11) Unpaid workers	(12) Paid workers	(13) Firm registry	(14) Access to credit	(15) Market reach
treated	1.643*	0.0842	-0.0163	0.121**	0.0341**	0.0283*	-0.0116
	(0.912)	(0.0641)	(0.0331)	(0.0564)	(0.0155)	(0.0165)	(0.0254)
N	2587	2566	2581	2586	2290	2588	2493
control mean	20.0238	1.1949	0.3908	0.4937	0.2650	0.2516	1.3644

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

8.4 Results on business performance – Outcomes and inputs

Following the logical framework, we continue by analyzing the impact on the main business performance outcomes. We estimate the impact on (1) *daily* and (2) *weekly sales*; (3) *daily* and (4) *weekly profits;* (5) the *salaries paid per month*,[12] and (6) the *monthly expenditure on inputs and materials for sale.* Variables are all self-reported and no checks are conducted to check their veracity.

All variables are transformed by limiting the upper values of the variables to try to mitigate the high standard deviation. We do this by winsorizing 1% of the right tail in each variable, which means that the highest values, those above the 99% of the data, are set to the value of the 99 percentile.[13]

First we run the analysis using all the information of women who answered the follow-up (**Error! Reference source not found.**); however, we have a high amount of missing values in this section,

[12] If there are no employees, the salary paid is 0.
[13] We conducted the analysis as well using the variables trimmed at the 99th percentile for robustness and we obtain similar results.

so we also run the analysis using only those observations that have a non-missing response for all of the variables of the set considered in this section (Table 13). The results do not change much.

We find no significant effects on sales (daily and weekly) nor in daily profits, but we find that weekly profits increased in 174.5 pesos for women who take the course. We also find that expenditure on inputs is 959.4 pesos higher and that an increase of 223.1 pesos is observed on salaries.

Table 12: ITT Winsorized inputs and outcomes

	(1) Sales per day winsorized	(2) Sales per week winsorized	(3) Profits per day winsorized	(4) Profits per week winsorized	(5) Salaries paid per month winsorized	(6) Inputs expenditure per monthwinsorized
treated	128.7	189.1	37.60	174.5**	223.1**	959.4**
	(91.73)	(202.9)	(45.09)	(79.99)	(111.2)	(471.9)
N	2415	2307	2271	2203	2520	2036
control mean	1,499.2225	4,002.6026	651.7808	1,513.0018	1,098.7353	6,898.7112

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

When we run the regression with a fixed sample, we observe that the variables mentioned above are still significant at the 5% level for profits per week and salaries paid per month, and at the 10% level for inputs expenditures. In this case, effects for profits per week and salaries paid per month are higher, with an increase of 183.8 and 344.8 pesos respectively. The effect on input expenditure is smaller in magnitude and statistical significance.

Table 13: ITT Winsorized inputs and outcomes (fixed sample)

	(1) Sales per day winsorized	(2) Sales per week winsorized	(3) Profits per day winsorized	(4) Profits per week winsorized	(5) Salaries paid per month winsorized	(6) Inputs expenditure per month winsorized
treated	142.7	181.3	20.66	183.8**	344.8**	879.9*
	(105.0)	(231.8)	(47.60)	(91.84)	(136.2)	(491.4)
N	1664	1664	1664	1664	1664	1664
control mean	1,378.1846	3,870.3197	594.3829	1,462.7485	1,013.8513	6,403.8627

Standard errors in parentheses

* p<0.10, ** p<0.05, *** p<0.01

To correct for multiple hypothesis testing, we also create a set of indexes concerning the most important business outcomes and inputs for the business. The indexes are constructed by normalizing each variable and then by adding those included in each index:

- Sales and profits index: Weekly and daily sales, and weekly and daily profits
- Inputs and salaries per month index: Amount spent monthly on inputs and expenditure on salaries
- Inputs, salaries per month and workers index: Amount spent monthly on inputs and expenditure on salaries, and number of workers employed
- Total inputs and outputs index: Weekly and daily sales, weekly and daily profits, amount spent monthly on inputs and expenditure on salaries, and number of workers employed

For women who take the course, as shown in **Error! Reference source not found.**the highest effect observed is on total inputs and outcomes, with an increase of 0.0427 points on the index when compared to those women who do not take the course. Indexes regarding inputs and salaries have increases of 0.0185 and 0.0223 points respectively. These results are statistically significant at the 5% level, while the increases observed on total inputs and outcomes are statistically significant at the 10% level.

Table 14: ITT Inputs and outcomes indexes

	(1) Sales and profit index	(2) Inputs and salaries per month index	(3) Inputs salaries per month and workers index	(4) Total inputs and outcomes index
treated	0.0217	0.0185**	0.0223**	0.0427*
	(0.0185)	(0.00775)	(0.00880)	(0.0227)
N	2495	2579	2600	2600
control mean	0.3805	0.1184	0.1534	0.5234

Following the ITT analysis, we also run a quantile regression (Table 15) through which we find that the complete business performance index has a positive and statistically significant effect for all quartiles, and that it also follows an upward tendency by showing a higher effect on women from the highest percentiles.

Table 15: ITT Quantile regression

	(1) Sales per day winsorized	(2) Sales per week winsorized	(3) Profits per day winsorized	(4) Profits per week winsorized	(5) Salaries paid per month winsorized	(6) Inputs expenditure per month winsorized	(7) Sales and profit index	(8) Inputs and salaries per month index	(9) Inputs salaries per month and workers index	(10) Total inputs and outcomes index
main										
treated	22.39	67.86	13.54*	40.00**	4.80e-12***	182.0***	0.00894	0.00177	0.00283	0.0155**
	(23.59)	(43.37)	(7.788)	(18.72)	(8.49e-14)	(66.25)	(0.00646)	(0.00151)	(0.00174)	(0.00676)
q50										
treated	51.38*	87.10	20.00	45.36	.	293.9*	0.0160*	0.00500*	0.00952**	0.0257***
	(30.66)	(75.68)	(18.03)	(44.10)	.	(175.7)	(0.00921)	(0.00294)	(0.00457)	(0.00979)
q75										
treated	162.1**	51.79	50.00	153.8**	.	669.1*	0.0289*	0.00821	0.00897	0.0544**
	(81.98)	(194.7)	(31.29)	(72.81)		(345.9)	(0.0173)	(0.0106)	(0.0112)	(0.0255)
N	2415	2307	2271	2203	2520	2036	2495	2579	2600	2600
Control mean	1,499	4,003	652	1,513	1,099	6,899	0.3805	0.1184	0.1534	0.5234

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

We estimate the treatment effects at each fifth quantile between the 5th and the 95th. The results are shown in Figure 4: Quantile regression for weekly sales including 95% confidence interval and Figure 5 below along with a 95 percent confidence interval. We can see that for the weekly measures of sales and profits the impact increases over the quantiles but so does the confidence interval. For the lowest percentiles, we don't seem to find an effect neither in weekly sales nor in weekly profits. However, an effect seems to appear in the highest percentiles for weekly profits.

Figure 4: Quantile regression for weekly sales including 95% confidence interval

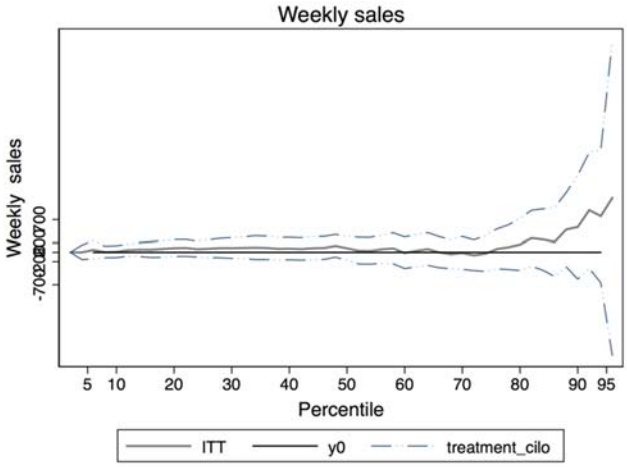
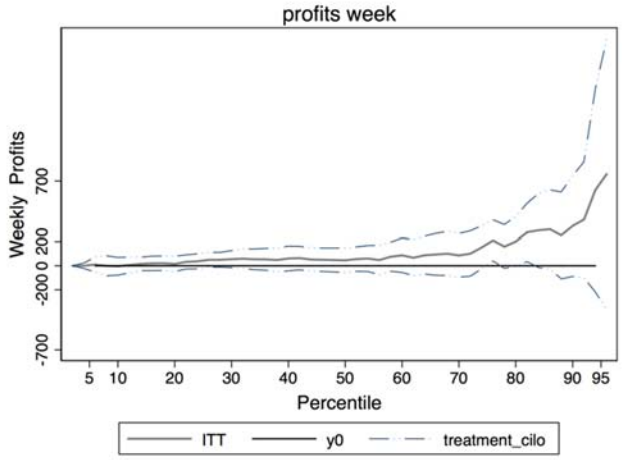


Figure 5: *Quantile regression for weekly profits including 95% confidence interval*



8.5 Results on perception

We analyze additional variables that we classified as *perception variables* and that are related to the perception that they have on their business and on their own potential and possibilities. The variables included are (1) if the entrepreneurs *wish to grow*, measured as a dummy*;* (2) what would be the greatest loan they believe they could acquire, regardless of the source, measured in levels; (3) what would be the minimum salary they would accept in order to close their business and move into the labor market, measured in levels; (4) how much they believe they would win through a salaried position in the labor market, measured in levels; (5) if they wish to close their business, measured as a dummy, and (6) a *Perception index* composed of the sum of all the normalized variables from this section.

The results, shown in Table 16, indicate that women who take the training have a higher perception on what the opportunity cost of closing their business and moving into the labor market would be.

In general, they place a higher value to the minimum amount of money they would accept as a monthly payment for closing their business and move into the labor market. Their opportunity cost of closing their business is 722.4 pesos higher compared to women who do not take the course. Furthermore, they believe that if they had to join the labor market for any external reason, they would receive a salary 439.9 pesos higher against women in the control group. These results are statistically significant at the 10% level.

Table 16: ITT results on perception

	(1) Wishes to grow	(2) Max. loan they could get	(3) Opportunity cost of closing business	(4) Expected salary on the labor market	(5) Wishes to close business	(6) Perception index
treated	-0.00305	-390.2	722.4*	434.9*	-0.00271	-0.0261
	(0.00556)	(1381.9)	(390.9)	(225.0)	(0.0137)	(0.0208)
N	2584	2214	2216	2262	2579	3093
control mean	0.9810	20,135.9125	10,503.3581	5,798.8719	0.1463	1.0703

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

8.6 Results on personal initiative.

To measure the effect of the hard and soft skills set of trainings on the Personal Initiative of the entrepreneurs, a set of open-ended questions is used. The questions are designed to capture how active the entrepreneurs are regarding their businesses, and to identify if they seek to constantly and innovatively implement changes to improve their businesses performance, or if instead they act reactively against external factors. This part of the questionnaire has two sets of questions. The first one, addressing the quantitative part of personal initiative (2), aims to identify how many changes the entrepreneur implements to improve her business. The second part seeks to measure the effort carried out by the entrepreneur by identifying if the changes were implemented on her own initiative, how active she was in carrying out the change, and whether it is an innovative change related to his or her field of work, and this is measured through the qualitative score (3) of personal initiative. Each answer is read and codified by trained personnel from the WBG and CREA.

The training is expected to have an effect on both the quantitative and qualitative aspects of Personal Initiative, and while we have positive coefficients for the scores, they are very low and we find no statistical significance in any of these measures. Additional work to be carried out within this aspect, will include making additional checks and re-codifying open-ended questions to validate and correct for any mistakes made through the initial codification.

Besides the personal initiative scores, that are also analyzed as normalized variables (4 and 5), we include in this section information on (6) if the entrepreneur introduced new products or services in the last six months; (7) invented a new product in the last six months; and if (8) she wishes to grow). All components are normalized and added to create a *Total Innovation Index* (1).

We don't find a significant impact on any innovation measures linked to the Personal Initiative training. However, this part of the training could improve business practices and business outcomes through other non-observable channels by complementing the knowledge acquired from the hard-skills set with soft-skill abilities including motivation and drive. (Table 17)

Table 17: ITT results on personal initiative

	(1) Total innovation index	(2) Total quantitative score	(3) Total qualitative score	(4) Total quantitative score normalized	(5) Total qualitative score normalized	(6) Has introduced new products in last 6m (dummy)	(7) Has invented a new product in last 6m	(8) Wishes to grow
treated	0.00440	0.0469	0.0338	0.00876	0.00812	0.00842	0.00596	-0.00353
	(0.0347)	(0.0810)	(0.0759)	(0.00669)	(0.00714)	(0.0180)	(0.00892)	(0.00552)
N	3096	1975	1975	1713	1713	3004	2973	2590
Control mean	1.5470	1.8365	2.3112	0.1515	0.2235	0.4906	0.0632	0.9810

B. Additional value of Personal Initiative

A previous evaluation of CREA was conducted in 2012 (Calderón et al, 2012.), back at a time where CREA only focused its services on small rural communities in Zacatecas and only provided hard-skills trainings. By comparing the results found then with those discussed in the previous section, we can have an idea of the value of adding soft-skills trainings to the program. Since the short-term analysis for the experiment was made one year after the treatment, and the long-term was made two and a half years after it, we compare our results to the short-term results.

While some of the previous results are similar to the ones observed in this report, such as the increased firm registry and increased profits, we find four main differences between the two analyses: 1) with the hard-skill only training, no effect was found on the declarative knowledge analysis as it was found for the hard-skills + soft skills program; 2) for the hard-skills only training, there is not an effect on the number of paid workers; 3) for the hard-skills only training, effects are found over the standardized profits and revenues. While we also find an increase in weekly profits, we also find a significant increase in the amount of expenditure on inputs, while in the hard-skills only analysis it is assumed that the increase in profits could be a result of lower expenses; 4) for the hard-skills training, women are found to work longer hours per week, while we don't find an

effect on hours worked per week and we actually find a decrease in the amount time devoted to the business by using a variable of days worked per week.

It could be argued that the difference in the results for expenses and paid salaries are due to an effort to make the businesses grow instead of only making their existing business more efficient, and that the motivation to do so can be a result of personal initiative trainings. For the long-term follow-up additional questions regarding entrepreneurship, agency, and other non-cognitive abilities and attitudes, such as self-efficacy, locus of control, and attitudes towards growth are included. These questions will allow us to identify if the attitudes towards her business are changing as a result of the training.

C. Heterogeneity

For all the results tested, we also conduct an analysis to test for heterogeneous effects considering the initial skills of the entrepreneur. As mentioned in previous sections, we initially randomized within strata of low skills entrepreneurs (LSE) and high skills entrepreneurs (HSE), as defined by their education level and cognitive abilities tests. The aim of this exercise was to identify if there is a type of entrepreneurs who benefit the most from the package of business trainings.

This information would be used to decide whether to target the program for a specific type of entrepreneurs in order to have a higher transformative impact with the limited resources available. It could also be useful in order to provide inputs for policies of employment generation, by knowing if a specific type of entrepreneurs should be encouraged to switch to the labor market.

The results (shown in Appendix 7) show almost no heterogeneity on the effects of the treatment. Testing heterogeneity on the Intention to Treat group, we don't find heterogeneity effects on any of the business performance outcome indexes tested, and concerning the individual tests for each variable, we find these effects to exist only for the following variables:

- High Skills Entrepreneurs have a higher declarative knowledge score regarding sales and strategies.
- High Skills Entrepreneurs have a higher total index score and management index score.

Testing heterogeneity on the group for the Treatment-on-the-Treated group, we find no significant effects on any variable. The result tables can be also found in Appendix 8

In contrast with our initial hypothesis that entrepreneurs could benefit differently from the treatment depending on their initial cognitive skills and education level, the results suggest that women benefit from the program equally regardless of their cognitive and educational background.

10. Additional analysis

The unique dataset that provides this evaluation has also provided valuable information to get to know in depth the characteristics of the population of female entrepreneurs. This present section

outlines an effort that has been undertaken in order to use the data available to address policy relevant considerations. One important analysis will be discussed: The heterogeneity in characteristics and performance between women who are in male-dominated sectors (defined as those sectors where most entrepreneurs are male), and women in traditionally female sectors. This information proves important for policy makers because it gives relevant inputs suggesting additional interventions that could be carried out to support and improve the conditions of female micro-entrepreneurs in Mexico.

A. Male-dominated sectors analysis: The effect of crossing over.

A relevant issue for understanding the behavior, profitability and success of small businesses is analyzing the industry in which they are placed. Important work has been done in Ethiopia (Albhai, Buehren and Papineni) and Uganda (Campos, Goldstein, McGorman, Munoz Boudet, Pimhidzai) analyzing the effects that the industry sector can have on business characteristics.

What has been done is a comparison between female-owned businesses in typically "female" sectors with those other equally female-owned businesses that thrive in a sector where most enterprises are headed by men. The conclusions show that these cross-over female-owned businesses have statistically higher profits and have more employees: In Ethiopia, cross-overs are found to have more than twice the profits that other businesses profits (13,588 vs. 6,172) and more than twice the amount of employees (4.34 vs. 1.95)[14] and in Uganda crossovers are found to be 3 times more profitable than others.[15]

In an effort to understand if these patterns are applicable to women in Mexico, we conducted a similar analysis using the baseline data from our study and Mexico's Micro-Businesses National Survey (ENAMIN 2012). We find consistent results, suggesting that female micro-entrepreneurs have a better performance when operating in male-dominated sectors. Moreover, we find additional results, showing that these entrepreneurs also have a higher level of education, cognitive abilities, and live in conditions of less poverty with smaller households.

The importance of this analysis arises from the fact that if we can understand how and why women cross-over, and which factors have an influence on this allocation, we could think of ways in which entrepreneurs in female-dominated sectors could be motivated to look for opportunities as cross-overs and in turn increase their economic situation and diminish the gender income gap. Additionally, one of the findings indicate that women in cross-over sectors employ more people. This could also imply that more employment opportunities could be generated by encouraging and supporting women to move to male-dominated sectors.

Methodology – crossover analysis

To conduct this analysis, we begin by defining what is a male-dominated sector. Using the

[14] Albhai, Buehren and Papineni, 2015.
[15] Campos, Goldstein, McGorman, Munoz Boudet, Pimhidzai, 2015.

ENAMIN, we obtain the amount of women and men that have businesses in each one of the 77 official economic activities enlisted in the survey with a three-digit official code. We classified a strongly male-dominated sector as one were more than 75% of the business owners that participate in that economic activity are male. From the 77 sectors, 43 fall into this classification. Only 7% of all the women from this representative sample participate in those sectors. (Table 18)

Table 18: Cross-over using ENAMIN

ENAMIN	Number of women	Percentage
Total female micro-entrepreneurs	12587	100%
Female micro-entrepreneurs in strongly male dominated sectors	902	7%

While we don't have an equivalent official classification of economic activities, we do ask the women through the baseline survey what her business consists of, and ask her to detail the type of products or services sold. Through a manual process and using key words, we use these open ended question to look for businesses that would fit in the equivalent three-digit sector definition of male-dominated activities. With this information, we are able to identify which women have their businesses in what according to the data from ENAMIN are strongly male-dominated sectors. (Table 19)

Some examples of male-dominated activities are: agriculture, farming, and mining industries; machinery and transport manufacturing; transportation services and parking industries; radio and TV, independent artists, writers, and specialized design; wood, chemical, and plastic industries; banking, finance and additional consulting; professional scientific and technical services; among others.

Examples of female-dominated businesses include those related to the food and paper industries; food, beverages and tobacco retail; furniture retail.

Table 19: Crossover using baseline information

Experiment 2 baseline	Number of women	Percentage
Total female micro-entrepreneurs	3,947	100%
Female micro-entrepreneurs in strongly male dominated sectors	353	8.944%

We find that 9% of the experiment 2 sample corresponds to strongly male-dominated sectors, which is similar to the 7% found in the national survey.

Through a simple comparison of means (tables found in Appendix 8), we compare the business characteristics means between women in male-dominated sectors and women in other sectors. We compare outcome variables, management variables, cognitive and non-cognitive skills and socio-economic status. The main results are the following:

A. *Business characteristics*
   - Crossovers have less clients per day and sell less products per day than non-crossovers, significantly.
   - Crossovers have more paid workers and spend 2.8 times more on salaries on average, significantly, and pay more salaries twice as big per paid worker.
   - Crossovers have daily sales more than twice higher than those who don't cross-over, and weekly sales are also almost twice as big. Daily profits are also 2.3 higher, and weekly profits are 1.7 times higher. All the results are statistically significant
   - Management indexes are also higher for crossovers,
   - Businesses are more likely

B. *Cognitive skills*
   - We find that on average women who cross-over have two more years of education than their counterparts, and their parents' education is also significantly higher both for the father's education and mother's education.
   - They get higher scores for cognitive tests (Raven test and digit span test)

C. *Non-cognitive skills*
   - From all the set of non-cognitive skills, the only difference found relates to locus of control measures. We find no other significant difference in the other non-cognitive or soft-skills abilities.

D. *Socio-economic status*
   - Women have lower measures of over-all poverty, and live in smaller households.

The results suggest that the cross-over women don't have a better performance due to inherent non-cognitive skills. However, we do find that these women come from more privileged backgrounds, as can be deduced from the smaller households and higher personal education and the education of the parents. The difference between the business characteristics of those owned by cross-overs and those owned by women in typically "feminine" sectors is not only statistically significant for many relevant variables, but is also very high.

Further work could be conducted to better understand the channels through which women allocate to male-dominated sectors. To begin with, we have added additional questions that we think could be of value for the long-term follow-up currently being implemented. By including questions on mentorship and role-models, we aim to understand who are the persons that have encouraged the crossover in order to find clues on how this motivation can be fostered.

11. Conclusions

This report discussed preliminary results of the first large-scale program targeting specifically female entrepreneurship that the Government of Mexico has conducted. An important feature of this intervention is that it combines training in hard-skills as well as in soft skills (self-starting behavior, future orientation and persistence).

The mid-term preliminary results indicate that the program appears to accomplish its most immediate goal in terms of generating business knowledge among female entrepreneurs that receive training. Furthermore, following our logical framework, as a result of the intervention, women adopt better management and business practices. This is important as, according to the literature, this kind of practices are closely related to revenues and productivity (Bloom 2013b, Mckenzie & Woodruff, 2014).

An interesting feature of our results is that the program appears to generate awareness in terms of the potential and profitability of the business, as women that participate in the training have a higher probability of closing their businesses, while the probability of them going out of the economically active population does not increase. ~~.~~

This analysis also shows that women that are trained appear to have a higher level of formalization as well as better access to financing. This last result is very important considering that, according to the literature, financial constraints are one of the main factors that prevent small firms from growing and surviving. This also has important policy implications as instead of promoting the use of subsidies to solve this market failure, the government should foster training and improvement of management practices as a mean to improve their access to financial resources.

In terms of the main outcomes of interest, our results show that entrepreneurs that participate in the program exhibit higher profits-per-week, pay better salaries and hire more paid workers. Besides these quantitative outcomes, they improve their perception as their opportunity cost for closing their business increases and would expect higher salaries if they were forced to go back to the labor market.

However, variables related to personal initiative do not appear to be affected by treatment in the mid-term. This result differs from the ones observed in previous studies that applied these soft-skills courses. A possible explanation for this could be that CREAs program is still more focused on hard skills with more hours devoted to this kind of knowledge, while a second explanation could be related to methodological differences in the personal initiative indicators used, as already mentioned in the result section.

Following our logical framework, even though the current results do not support a direct effect of treatment over personal initiative, our effects regarding management suggest that there is an unobserved factor that we are still not taking into consideration. That is, when we analyze the treatment effects on management along with the relation that these management practices have

with performance, it is possible to observe that the adoption of these practices can only account for around half of the differences observed in performance variables such as profits. Therefore, there are some unobserved factors affecting the effect of training over performance and they could be related to personal initiative. In this sense, for the long-term follow-up it is important to construct better measures for these variables in order to be able to test this hypothesis.

Our heterogeneity analysis, separating entrepreneurs that initially had low skills from the ones with high skills indicates that there do not appear to be any difference in the treatment effects between these two groups, at least in the mid-term. This is important for policy decisions in terms of the targeting of training programs, such as the one analyzed in this report, as this result indicates that low-skilled entrepreneurs benefit in the same way from this kind of interventions.

A very important result due to its magnitude and to its implications for policy design is the one related to the crossover analysis, where we found that women that establish businesses in male-dominated sectors have much better characteristics and performance than those from traditionally "feminine" sectors. Going forward, this study will focus, for the long-term analysis, on the channels through which this relation operates and will analyze these male-dominated sectors in order to identify how to generate incentives for women to participate and therefore, enhance their business performance.

Finally, it is important to analyze the long-term impacts of this program as evidence from previous studies such as the ongoing field experiment in Togo indicates that sometimes the real impacts of this kind of training programs are hardly observed in the short and mid terms but in the long term, much higher effects of the interventions are observed.

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Appendix 1

First experiment – "Non-selected" sample

Methodology

In the first experiment, for feasibility reasons[16] the random selection was done at the level of AGEB (*Área Geo-Estadística Básica*), which is a geographical unit as defined by INEGI (Instituto Nacional de Estadística y Geografía). The selection of the AGEB is done in a manner to ensure that treated and control AGEBs are not contiguous to limit any potential contamination between groups. Both the treated and controls AGEBs are part of the eight Mexican urban areas mentioned above. The implementation of the experiment followed this steps:

Randomization

Step 1. A number of AGEBs were selected, with relatively high business density to lower the costs of finding the required number of qualifying entrepreneurs.[17] Conduct a screening in the selected AGEBs to identify eligible female entrepreneurs. Enumerators looked for female micro entrepreneurs that had a small visible establishment, a semi-permanent or permanent stand on the street, or that sell and produce something in their dwelling. They applied the survey to those firms whose owner is a women entrepreneur and has less than 5 workers and less than 4 million Mexican pesos income. When a qualifying entrepreneur is found, the enumerator applied the baseline survey to her.

Step 2. We randomly assigned the surveyed AGEBs to control and treatment groups.

Step 3. After the baseline survey and the randomization, the selected female entrepreneurs that are within the treatment AGEBs were invited individually to the treatment. This invitation was done by Crea's personnel, and had several complications including that many of the women could not be re-contacted and many others showed no interest in joining the trainings.

Given low take-up and the unviability of inviting women to the training, we used a restriction in order to restrict the sample in a way that continued to be balanced between treatment and control but to exclude women who had characteristics that seemed to indicate that they would not be able to be invited or join the training. The rule followed was:

((A==1 | B==1 | C==1 | D==1 | (G==1 & H==1 & I==1))

gen A = Less than 5 days of work per week
gen B = Under 18 years old or over 60 years old
gen C = Business over 300 months old
gen D = Less than three years of education
gen G = With children under 6 years old.
gen H = Living with adults over 60 years old.
gen I = More than 60 hrs dedicated to taking care of small children per week

[16] In the first experiment the businesses in the AGEB are literally neighbors so it is considered not possible by CREA to offer treatment to some and not others in the same AGEB.
[17] In order to identify "high business activity", we relied on the 2009 Economic Census which reports information that is representative at the level of individual AGEB.

The new restricted sample was composed in the following way:

RESTRICTED SAMPLE	#	%
Control	2842	41%
Treatment	4090	59%
TOTAL	6932	

Those who did not meet that criteria for exclusion, and were from the treatment group (4090) continued to be invited by Crea. Out of the 4090 women looked for by Crea:

- 2246 were invited
- 1749 could not be invited due to changed addresses or mistakes in data
- 95 were dismissed due to other errors in baseline data.

Step 4. The business literacy and personal initiative trainings were offered (as part of a same package) to the selected group. From those invited, only 529 attended at least 1 course and out of those only 243 completed the treatment.

Step 5. The first follow-up survey was carried out to both the treatment and control group: between 6 and 9 months after after the treatment group of each stratus has completed or should have completed the course. We constructed a sub-sample of the population due to budget restrictions and low take-up:

For first wave follow-up: September 2015*:* Considering the available budget, the sub-sample for the follow-up was constructed taking as a starting point those who completed their treatment (243).

A. Defining groups: ITT and control

We aimed at having a control group equal in size to the treatment group:

(A+B+C = D)

Group A - Complete treatment

Group B - Incomplete treatment

Group C - No take up

Group D - Control

B. Defining ITT

We eliminated those classified by Crea as "no viable", meaning they could not be invited to the trainings because we couldn't find them. Therefore, we are left with 2546 observations from the treatment group were 253 (9.9%) were incomplete take-up, 2050 (80.6%) have no take-up and 243 (9.5%) have complete take-up. The proportions assigned within the ITT group for the follow-up sample do not repent the actual take-up. In this way, it is possible that the ITT analysis would be overestimating the impact of the program, and the ITT estimator would be between the ITT and the TOT.

For each AGEB assigned as treated, we randomly assigned ITT observations in the following way:

-All from group A (114) that had 5 or more months treated.

-68 from group B and

-68 from group C.

C. Defining control group

1. We matched the resulting treated AGEBs with their corresponding control AGEBs that were assigned to them in baseline.
2. We kept all the observations that within those control AGEBs
3. We randomly selected 250 observations out of those control AGEBs. First we stratified by AGEB and select 4 from each one, and then out of the resulting selection, we randomly keep 250.
4. We obtained yhat and collapsed at the AGEB level.
5. We obtained the squared sum of the difference between each treated AGEB and its corresponding control, and we iterate the selection of A B C until we obtain a sample that minimizes the distance bewteen ITT (A+B+C) and D.

The sample we obtained was composed in the following way:

- 115 group A
- 68 group B
- 68 group C
- 234 group D

D. Additional observations:

When the data from this first follow-up wave was being collected, we obtained information of 14 women who had completed the treatment and had not been included in the follow-up. They were subsequently included in the sample, together with 14 control observations. To determine these additional observations

1. We deleted from the data the control observations that were already in the sample.
2. We match the AGEBs from the 14 additional control women with their control AGEB (They corresponded to 11 different AGEBs)
3. We take two observations from each of the 11 control AGEBs, and then we randomly select 14 out of those 22 observations.
4. It is done with a loop so that the GENERAL BALANCE, including these additional 28 observations, minimizes the distance of the yhats, as was done for in august.

For third wave follow-up: September 2015: *The second wave was only of women from experiment 2, so women from experiment 1 were not included until round 3.*

1. Women from round 1 were eliminated from database.
2. Same steps as for first wave follow-up were followed: 37 from incomplete and 27 from no take-up were chosen.
3. Then, 148 from the control group were chosen.

The sample we obtained was composed in the following way:

- 74 treated
- 37 incomplete
- 37 no take-up
- 148 control

Step 6. The second follow-up survey was carried out to both the treatment and control groups 12-18 months after the treatment group of that stratum has completed the training program (to be completed in July 2017)

Power calculations for experiment 1

Given that the randomization was done at the AGEB level, we also include interclass correlation and observations per cluster in order to get the correct estimation.

Table 20: Power calculations experiment 1

	Mean	SD	Expected change	Interclass correlation	Observations per cluster	Total observations
Clients per day	26.42988	28.03136	20%	0.17685	26	4794
Products per day	31.24205	30.54627	20%	0.15471	26	3662
Number of workers	0.410721	0.9536057	20%	0.04701	26	9206
Number of paid workers	0.1932008	0.7209081	20%	0.03734	26	4680
Number of unpaid workers	0.1020446	0.486856	20%	0.03772	26	2146
Firm Registry	0.4342984	0.4957105	20%	0.19211	26	5944
Sales per day	796.082	979.1634	20%	0.06811	26	3212
Sales per week	3821.891	4712.465	20%	0.04856	26	2644
Profits per day	298.5458	390.3148	20%	0.11662	26	5256
Profits per week	1419.933	1724.888	20%	0.03761	26	2252
Inputs expenditure per month	7696.76	11130.53	20%	0.01832	26	2396
Management total index	12.88408	7.73617	20%	0.14543	26	1318

Note: Clients per day, Products per day, Sales per day, Sales per week, Profits per day, Profits per week, and Inputs expenditure per month are trimmed at the 99 percentile.

Appendix 2

See attached the baseline questionnaire

Appendix 3

See attached the mid-term follow up questionnaire.

Appendix 4

See attached long-term follow up questionnaire.

Appendix 5

Attrition analysis

The attrition analysis is made by comparing women who answered the follow-up survey and those who didn't. We make three different attrition analysis. We do it considering only women from the control group, then considering only those from the treatment group, and then only those who completed the treatment.

We define attrition as a dummy that takes the value of 1 when they *did not* answer the follow-up.

Table 21: Attrition analysis for the control group

	VARIABLES	Complete survey mean	Attrition mean	Difference	Observations		VARIABLES	Complete survey mean	Attrition mean	Difference	Observations
(1)	Total index	0.459	0.45067	-0.00833	1,921	(19)	Market reach	1.307	1.3233	0.0163	1,920
				(0.0128)						(0.0345)	
(2)	Management index	0.454	0.44574	-0.00826	1,921	(20)	Sales per day winsorized	1475	1936.9	461.9**	1,876
				(0.0130)						(213.7)	
(3)	Modern pricing methods	0.778	0.777473	-0.000527	1,925	(21)	Sales per week winsorized	3749	4820	1,071**	1,826
				(0.0224)						(457.0)	
(4)	Accounting methods	0.726	0.7399	0.0139	1,925	(22)	Profits per day winsorized	572.9	774.9	202.0***	1,817
				(0.0237)						(78.09)	
(5)	Able to do accounting methods	0.548	0.5173	-0.0307	1,925	(23)	Profits per week winsorized	1428	1737.1	309.1*	1,788
				(0.0269)						(158.1)	
(6)	Composite Business Practice Score	0.460	0.4499	-0.0101	1,921	(24)	Salaries paid per month winsorized	848.8	1296.4	447.6*	1,884
				(0.0131)						(250.9)	

(7)	Management - marketing index	0.429	0.42713	-0.00187	1,922	(25)	Inputs expenditure per month winsorized	7347	8569	1,222	1,770
				(0.0161)						(905.9)	
(8)	Management - stock index	0.578	0.57047	-0.00753	1,922	(26)	Wishes to grow	0.982	0.97593	-0.00607	1,914
				(0.0149)						(0.00810)	
(9)	Management - records index	0.510	0.4987	-0.0113	1,921	(27)	Maximum loan she could get	34014	71591	37,577	1,710
				(0.0172)						(27,144)	
(10)	Management - finance index	0.417	0.4003	-0.0167	1,924	(28)	Opportunity cost of closing business	7615	8672	1,057**	1,759
				(0.0164)						(515.4)	
(11)	Hours worked per week	35.27	33.854	-1.416	1,921	(29)	Salary expected in the labor market	5285	6017.4	732.4**	1,770
				(1.259)						(340.7)	
(12)	Days worked per week	5.300	5.299796	-0.000204	1,919	(30)	Wishes to close business	0.123	0.1063	-0.0167	1,917
				(0.162)						(0.0169)	
(13)	Clients per day	13.93	13.81	-0.120	1,920	(31)	Sales and profit index	0.295	0.3676	0.0726**	1,901
				(1.088)						(0.0317)	
(14)	Products per day	30.52	28.888	-1.632	1,917	(32)	Inputs and salaries per month index	0.0957	0.1204	0.0247*	1,921
				(3.332)						(0.0129)	
(15)	Number of workers	0.833	1.048	0.215	1,893	(33)	Inputs salaries per month and workers index	0.0985	0.1253	0.0268**	1,925
				(0.167)						(0.0134)	
(16)	Unpaid workers	0.189	0.1701	-0.0189	1,908	(34)	Total inputs and outcomes index	0.390	0.487	0.0970**	1,925
				(0.0318)						(0.0396)	
(17)	Firm registry	0.242	0.24373	0.00173	1,901	(35)	Perception index	1.135	1.12595	-0.00905	1,925
				(0.0232)						(0.0184)	
(18)	Access to credit	0.257	0.2799	0.0229	1,920						
				(0.0241)							

Table 22: Attrition analysis for the ITT group

	VARIABLES	Complete survey mean	Attrition mean	Difference	Observations		VARIABLES	Complete survey mean	Attrition mean	Difference	Observations
(1)	Total index	0.446	0.4642	0.0182	2,026	(19)	Market reach	1.323	1.3799	0.0569	2,017
				(0.0128)						(0.0367)	
(2)	Management index	0.444	0.4605	0.0165	2,026	(20)	Sales per day winsorized	1428	1824.1	396.1*	1,958
				(0.0129)						(203)	
(3)	Modern pricing methods	0.762	0.733	-0.0290	2,030	(21)	Sales per week winsorized	3504	4905	1,401***	1,928
				(0.0243)						(441.3)	
(4)	Accounting methods	0.703	0.7846	0.0816***	2,030	(22)	Profits per day winsorized	543.5	734.2	190.7**	1,889
				(0.0233)						(79.10)	
(5)	Able to do accounting methods	0.511	0.5448	0.0338	2,030	(23)	Profits per week winsorized	1326	1812.1	486.1***	1,868
				(0.0276)						(154.9)	
(6)	Composite Business Practice Score	0.449	0.4653	0.0163	2,025	(24)	Salaries paid per month winsorized	861.3	1524.7	663.4**	2,001
				(0.0129)						(264.1)	
(7)	Management - marketing index	0.416	0.4275	0.0115	2,027	(25)	Inputs expenditure per monthwinsorized	7029	9070	2,041**	1,833
				(0.0156)						(1,018)	
(8)	Management - stock index	0.565	0.55746	-0.00754	2,027	(26)	Wishes to grow	0.975	0.98298	0.00798	2,024
				(0.0156)							
(9)	Management - records index	0.493	0.5305	0.0375**	2,025	(27)	Maximum loan she could get	37413	44072	6,659	1,800
				(0.0185)						(7,180)	
(10)	Management - finance index	0.411	0.4274	0.0164	2,027	(28)	Opportunity cost of closing business	7551	9484	1,933***	1,861
				(0.0167)						(553.7)	

(11)	Hours worked per week	34.06	35.22	1.160	2,026	(29)	Salary expected in the labor market	37413	44072	6,659	1,800
				(1.276)						(1,633)	
(12)	Days worked per week	6.168	5.234	-0.934*	2,024	(30)	Wishes to close business	0.112	0.11435	0.00235	2,022
				(0.495)						(0.0177)	
(13)	Clients per day	13.96	12.692	-1.268	2,026	(31)	Sales and profit index	0.276	0.3704	0.0944***	1,995
				(0.985)						(0.0310)	
(14)	Products per day	30.72	29.612	-1.108	2,027	(32)	Inputs and salaries per month index	0.0922	0.132	0.0398***	2,023
				(3.455)						(0.0146)	
(15)	Number of workers	0.843	1.941	1.098	2,014	(33)	Inputs salaries per month and workers index	0.0957	0.1379	0.0422***	2,030
				(0.989)						(0.0151)	
(16)	Unpaid workers	0.178	1.108	0.930	2,020	(34)	Total inputs and outcomes index	0.368	0.499	0.131***	2,030
				(0.980)						(0.0413)	
(17)	Firm registry	0.249	0.3057	0.0567**	2,026	(35)	Perception index	1.124	1.13049	0.00649	2,030
				(0.0253)						(0.0195)	
(18)	Access to credit	0.253	0.2932	0.0402	2,027						
				(0.0251)							

Table 23: Attrition analysis for the TOT group

	VARIABLES	Complete survey mean	Attrition mean	Difference	Observations		VARIABLES	Complete survey mean	Attrition mean	Difference	Observations
(1)	Total index	0.464	0.46915	0.00515	914	(19)	Market reach	1.334	1.447	0.113*	913
				(0.0219)						(0.0625)	
(2)	Management index	0.462	0.46406	0.00206	914	(20)	Sales per day winsorized	1509	1494.18	-14.82	884
				(0.0222)						(209.2)	
(3)	Modern pricing methods	0.761	0.741	-0.0200	918	(21)	Sales per week winsorized	3665	5628	1,963***	868
				(0.0397)						(747.6)	
(4)	Accounting methods	0.719	0.7835	0.0645*	918	(22)	Profits per day winsorized	567.3	732.1	164.8	858
				(0.0381)						(120.1)	
(5)	Able to do accounting methods	0.503	0.5522	0.0492	918	(23)	Profits per week winsorized	1360	2180.4	820.4***	843
				(0.0453)						(287.6)	
(6)	Composite Business Practice Score	0.466	0.46797	0.00197	915	(24)	Salaries paid per month winsorized	1082	1608.9	526.9	907
				(0.0222)						(460.0)	
(7)	Management - marketing index	0.441	0.45098	0.00998	915	(25)	Inputs expenditure per month winsorized	7042	9742	2,700	827
				(0.0276)						(1,747)	
(8)	Management - stock index	0.573	0.528	-0.0450*	915	(26)	Wishes to grow	0.974	0.9856	0.0116	916
				(0.0263)						(0.0115)	
(9)	Management - records index	0.509	0.5356	0.0266	915	(27)	Maximum loan she could get	50587	58266	7,679	812
				(0.0314)						(16,120)	
(10)	Management - finance index	0.425	0.4216	-0.00340	915	(28)	Opportunity cost of closing business	8380	9832	1,452*	850

				(0.0278)						(859.2)	
(11)	Hours worked per week	33.69	36.245	2.555	915	(29)	Salary expected in the labor market	5907	6899.7	992.7*	867
				(2.178)						(589.9)	
(12)	Days worked per week	6.222	4.979	-1.243*	915	(30)	Wishes to close business	0.106	0.0788	-0.0272	915
				(0.641)						(0.0253)	
(13)	Clients per day	13.56	13.8	0.240	916	(31)	Sales and profit index	0.289	0.3876	0.0986**	899
				(1.698)						(0.0474)	
(14)	Products per day	30.67	38.67	8.000	916	(32)	Inputs and salaries per month index	0.0997	0.14	0.0403	914
				(7.303)						(0.0249)	
(15)	Number of workers	0.908	1.064	0.156	909	(33)	Inputs salaries per month and workers index	0.103	0.1435	0.0405	918
				(0.253)						(0.0255)	
(16)	Unpaid workers	0.189	0.1055	-0.0835*	914	(34)	Total inputs and outcomes index	0.387	0.518	0.131**	918
				(0.0447)						(0.0652)	
(17)	Firm registry	0.283	0.3547	0.0717*	915	(35)	Perception index	1.123	1.0989	-0.0241	918
				(0.0435)						(0.0280)	
(18)	Access to credit	0.290	0.3401	0.0501	916						
				(0.0432)							

Appendix 6

Treatment-on-treated results

The TOT analysis is done through the following specification:

$$(4)\ Y_{i,t} = \beta_0 + \beta_1 After + \beta_2 Takeup + \beta_3 (Takeup * After) + \beta_4 S_i + \epsilon_{it}$$

Where $After$ takes the value of 1 after the first follow-up round and $Takeup$ is a dummy that takes the value of 1 if the entrepreneurs finished the training, $Takeup * After$ is the interaction and $S_i$is the interaction between both indicators.

In the present appendix, we focus on the coefficients obtained for the $Takeup * After$ interaction, meaning the effect, after the follow-up wave, on women who completed the training.

When we look at the Table 24 , the positive effect of the course is reflected in the variable that measures the ability to do accounting methods with an increase of .0769 points. Furthermore, being in the high-skills group yields better scores in almost all components of the knowledge of hard skill concepts. However, when we analyze whether the effects differ between low and high-skills women through the interaction term, we observe that the high-skills group exhibits positive effects on all variables except on the ICT indicator. The highest effects are observed on accounting methods and management records with an increase of .186 points.

Table 24: TOT Results on business practices

	(1)	(2)	(3)	(4)	(5)	(6)
	Total index	Modern pricing methods	Accounting methods	Able to do accounting methods	Management index	ICT Use
takeup	-0.0256	-0.0327	-0.0489	-0.0769**	-0.0224	0.0390
	(0.0167)	(0.0317)	(0.0341)	(0.0376)	(0.0167)	(0.0341)
after	0.0459***	0.0548***	-0.00775	0.160***	0.0425***	0.0652***
	(0.00835)	(0.0151)	(0.0172)	(0.0182)	(0.00837)	(0.0178)
Take up * after	0.125***	0.101***	0.186***	0.131***	0.135***	0.0510
	(0.0235)	(0.0420)	(0.0471)	(0.0494)	(0.0236)	(0.0504)
N	5683	5693	5693	5693	5683	5665
control_mean	0.4745	0.8014	0.7209	0.6223	0.4687	0.3012

	(7) Composite Business Practice Score	(8) Management - marketing index	(9) Management - stock index	(10) Management - records index	(11) Management - finance index
takeup	-0.0239	-0.0270	-0.0288	-0.0372	-0.0127
	(0.0168)	(0.0204)	(0.0215)	(0.0240)	(0.0222)
after	0.0425***	0.0159	0.0673***	0.0801***	0.0352***
	(0.00840)	(0.0103)	(0.0112)	(0.0119)	(0.0115)
Take up * after	0.137***	0.125***	0.101***	0.186***	0.131***
	(0.0237)	(0.0290)	(0.0312)	(0.0332)	(0.0319)
	5676				
N	0.4743	5688	5681	5682	5690
control_mean		0.4281	0.6058	0.5427	0.4291

Standard errors in parentheses * p<0.10, ** p<0.05, *** p<0.01

When we conduct the TOT analysis for Performance results, we find women who take the course work on average 2 days less than women who do not take the course. In addition, the likelihood of having a formal registry is higher for women who take the course (Table 25). However, when we conduct the TOT analysis for the other measures, we do not find a significant impact on any of them. All tables are shown below.

Table 25: TOT Results on Performance results

	(1) Hours worked per week	(2) Days worked per week	(3) Clients per day	(4) Products per day	(5) Number of workers	(6) Unpaid workers
takeup	-2.540	1.815*	0.101	0.523	0.0217	-0.0220
	(2.001)	(1.026)	(1.447)	(4.445)	(0.128)	(0.0436)
after	1.233	-0.369***	0.376	-10.49***	0.362***	0.202***
	(1.004)	(0.104)	(0.726)	(1.692)	(0.0587)	(0.0276)
takeup_after	1.192	-2.044**	-0.163	2.061	0.183	0.0306
	(2.713)	(1.037)	(2.014)	(4.825)	(0.196)	(0.0810)
N	5654	5669	5680	5679	5655	5670
control_mean	35.5741	5.2808	14.2812	26.3023	0.9981	0.2749

(2/2)

	(7) Paid workers	(8) Firm registry	(9) Access to credit	(10) Market reach
takeup	0.193	0.0147	-0.0104	0.0300
	(0.221)	(0.0325)	(0.0329)	(0.0476)
after	0.0948**	0.0235	-0.00556	0.0578**
	(0.0465)	(0.0174)	(0.0167)	(0.0251)
takeup_after	0.0424	0.0874*	0.0672	-0.0229

	(0.252)	(0.0496)	(0.0473)	(0.0708)
N	5676	5372	5681	5586
control_mean	0.4858	0.2461	0.2493	1.3238

Standard errors in parentheses * p<0.10, ** p<0.05, *** p<0.01

Table 26: TOT winsorized inputs and outcomes

	(1) Sales per day winsorized	(2) Sales per week winsorized	(3) Profits per day winsorized	(4) Profits per week winsorized	(5) Salaries paid per month winsorized	(6) Inputs expenditure per month winsorized
takeup	-128.8	-544.0	-71.56	-227.2	19.13	-717.9
	(225.7)	(467.8)	(80.63)	(171.3)	(263.3)	(1150.9)
after	24.62	253.7	78.91*	85.00	249.9*	-448.2
	(107.0)	(241.6)	(45.61)	(87.59)	(134.3)	(531.9)
takeup_after	336.6	428.7	68.17	310.7	298.4	1972.1
	(301.2)	(656.1)	(123.4)	(242.3)	(378.8)	(1538.2)
N	5489	5354	5304	5219	5602	5019
control_mean	1,451.3176	3,727.1291	584.7049	1,434.8613	926.4161	7,121.2351

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

Table 27: TOT Outcome indexes

	(1) Sales and profit index	(2) Inputs and salaries per month index	(3) Inputs salaries per month and workers index	(4) Total inputs and outcomes index
takeup	0.207	0.0400	0.198	0.00281
	(0.136)	(0.130)	(0.140)	(0.136)
after	0.303***	0.0145	0.280***	0.0316
	(0.0657)	(0.0758)	(0.0703)	(0.0767)
Takeup*after	0.0567	0.0351	0.0430	0.0989
	(0.0533)	(0.0243)	(0.0267)	(0.0700)
N	5577	5671	5693	5693
Control mean	0.3230	0.1042	0.1225	0.4393

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

Table 28: TOT results on perception

	(1) Wishes to grow	(2) Max. loan they could get	(3) Opportunity cost of closing business	(4) Expected salary on the labor market	(5) Wishes to close business	(6) Perception index
takeup	-0.0145	7235.0	-194.7	460.5	-0.0251	-0.0255
	(0.0110)	(10747.7)	(634.2)	(409.8)	(0.0243)	(0.0271)
after	-0.000602	-13878.4***	2888.2***	513.9**	0.0229*	-0.0650***
	(0.00521)	(2748.6)	(340.9)	(203.2)	(0.0132)	(0.0175)
takeup_after	0.00614	-7166.1	1439.4	498.3	0.0186	-0.0299
	(0.0156)	(10972.2)	(1005.5)	(607.1)	(0.0364)	(0.0517)
N	5674	5207	5234	5285	5670	6186
Control mean	0.9794	25,705.4320	8,764.9823	5,510.6635	0.1366	1.0861

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

Appendix 7

Heterogeneity tables

ITT heterogeneity effects.

Following equation (2) from Section 8 (Mid-term results), where hse_treat is the interaction between being high skills dummy, and the value of Y in time 2 using an ANCOVA specification.

1. Results on learning.

When we look at the Table 29 the positive effects of the course are reflected in business total knowledge, costs, legal and fiscal regards and sales strategies. The highest effect is observed on knowledge of costs, with an increase of 0.0962 points, followed by legal and fiscal regards (0.0861 points). Being in the high-skills group yields better scores in all components of learning module. However, when we analyze whether the effects differ between low and high-skills women through the interaction term, we observe that the high-skills group only exhibits a higher and positive effect of 0.0634 points on the score corresponding to sales strategies, with a 10% level of significance.

Table 29: Heterogeneous effects on learning variables ITT

	(1) Business total knowledge	(2) Business knowledge - costs	(3) Business knowledge - pricing	(4) Business knowledge - legal and fiscal regards	(5) Business knowledge - organization and production strategies	(6) Business knowledge - marketing	(7) Business knowledge - sales strategies	(8) Business knowledge - business planning
treated	0.0307***	0.048***	0.002	0.0861***	0.0290	0.0173	0.0524**	-0.00937
	(0.0112)	-0.017	-0.017	(0.0253)	(0.0243)	(0.0192)	(0.0252)	(0.0199)
High skills	0.0729***	0.072***	0.060***	0.111***	0.125***	0.0522***	0.0632**	0.0404**
	(0.0110)	-0.017	-0.018	(0.0253)	(0.0236)	(0.0184)	(0.0255)	(0.0190)
High Skills* Treatment	0.0143			0.0164	-0.0146	-0.00641	0.0634*	0.0153
	(0.0157)	0 -0.023	0.028 -0.025	(0.0343)	(0.0325)	(0.0251)	(0.0351)	(0.0262)
N	3093	3093	3093	3093	3093	3093	3093	3093
control mean	0.6178	1.4854	0.7593	0.4942	0.6773	0.8461	0.4610	0.8366

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

2. Business practices

When we analyze the effects for the whole treatment group (ITT) in **Error! Reference source not found.**, the treatment effects indicate that there is an increase of 0.0522 points in the total index, and one of 0.0475 in the management index. When we look at each component, accounting methods are the ones that have larger effects, of 0.106 and 0.119 points respectively. All components of the management index are statistically significant except the one regarding stock management.

Once again, women in the high-skills group exhibit greater increases in most of the practices, as indicated by the positive and significant coefficients of the High-skills dummy. The component in which this group have higher increases compared to the other group is ICT use, with a 0.149 points increase in the score compared to the low-skills group. When we analyze the interacted variable, it seems that the effect of the treatment over the total index is 0.0290 higher for women in the high-skills group, with the highest difference observed in the case of stock management with a coefficient of 0.0482 points. Therefore, the training only appears to affect the stock management score in the case of high-skills entrepreneurs.

Table 30: Heterogeneous effects on business practices-ITT

	(1) Total index	(2) Modern pricing methods	(3) Accounting methods	(4) Able to do accounting methods	(5) Management index	(6) ICT use
treated	0.0522***	0.0330*	0.106***	0.119***	0.0475***	0.0568**
	(0.0111)	(0.0197)	(0.0237)	(0.0242)	(0.0112)	(0.0233)
High skills	0.0202*	0.00222	0.0465*	0.0557**	0.0211*	0.149***
	(0.0109)	(0.0201)	(0.0245)	(0.0248)	(0.0110)	(0.0239)
High Skills* Treatment	0.0290*	0.000255	-0.00839	0.0144	0.0298*	-0.0235
	(0.0151)	(0.0268)	(0.0320)	(0.0319)	(0.0153)	(0.0335)
N	2592	2600	2600	2600	2592	2572
control mean	0.5044	0.8331	0.7184	0.7089	0.4970	0.3424

	(7) Composite Business Practice Score	(8) Management - marketing index	(9) Management - stock index	(10) Management - records index	(11) Management - finance index
treated	0.0480***	0.0448***	0.0144	0.0618***	0.0510***
	(0.0113)	(0.0139)	(0.0161)	(0.0163)	(0.0159)

High skills	0.0200*	0.0411***	-0.0112	0.0251	0.0345**
	(0.0111)	(0.0136)	(0.0159)	(0.0165)	(0.0160)
High Skills* Treatment	0.0294*	0.0194	0.0482**	0.0361	0.0263
	(0.0154)	(0.0194)	(0.0221)	(0.0220)	(0.0221)
N	2583	2595	2588	2589	2597
control mean		0.4451	0.6456	0.5906	0.4520

Standard errors in parentheses * p<0.10, ** p<0.05, *** p<0.01

3. Business practices – Strategy and behavior

Analyzing the effects of being in the treatment group, we observe in Table 31 that products sold per-day and firm registry are the only components that are statistically significant at a 10% level. Women who take the course, on average sell 2.612 more products than those that do not take it. Additionally, the likelihood of having a formal registry is higher for women who take the course.

High skills women have better results in measures for new products and ideas and PI basic index, but the highest difference is observed on unpaid workers, where the index decreased in 0.149 points.

The interaction between the high-skills dummy and the treatment indicates that there are no statistically significant differences between high and low-skills entrepreneurs. That is, the effects of participating in the training are similar, regardless of whether they are in the low or high-skills groups.

Table 31: Heterogeneous effects on business practices - Strategy and behavior ITT

	(1) Has closed business	(2) Has opened a new & different business	(3) Doesn't work	(4) PI basic index	(5) New products and ideas	(6) Hours worked per week	(7) Days worked per week	(8) Clients per day	(9) Products sold per day
treated	0.0296	-0.00560	0.00300	-0.0130	0.0966	-1.104	-0.172	1.378	2.612*
	(0.0183)	(0.00886)	(0.0142)	(0.0483)	(0.374)	(1.328)	(0.116)	(1.000)	(1.388)
High skills	-0.000560	0.00675	-0.0149	0.0903*	1.060**	-1.584	0.00820	-1.362	-2.622**
	(0.0179)	(0.00965)	(0.0136)	(0.0487)	(0.420)	(1.303)	(0.111)	(0.958)	(1.298)
High Skills* Treatment	-0.0161	-0.000368	-0.0108	0.0525	-0.313	1.363	0.0804	-2.161	-1.895
	(0.0251)	(0.0127)	(0.0188)	(0.0674)	(0.549)	(1.777)	(0.156)	(1.327)	(1.844)
N	3090	3090	3090	3093	3026	2561	2578	2588	2587
control	0.1317	0.0353	0.0740	1.1858	6.5458	36.5028	4.9314	14.3095	20.0238

mean

	(10) Number of workers	(11) Unpaid workers	(12) Paid workers	(13) Firm registry	(14) Access to credit	(15) Market reach
treated	0.119	-0.0506	0.0642	0.0389*	0.00566	-0.0246
	(0.0986)	(0.0554)	(0.0724)	(0.0216)	(0.0233)	(0.0344)
High skills	0.0571	-0.149***	0.0964	0.0352	0.0246	0.0589
	(0.0777)	(0.0455)	(0.0676)	(0.0217)	(0.0234)	(0.0366)
High Skills* Treatment	-0.0667	0.0647	0.111	-0.00918	0.0437	0.0258
	(0.129)	(0.0686)	(0.115)	(0.0309)	(0.0331)	(0.0510)
N	2566	2581	2586	2290	2588	2493
control mean	1.1949	0.3908	0.4937	0.2650	0.2516	1.3644

Standard errors in parentheses * p<0.10, ** p<0.05, *** p<0.01

4. Business practices – Main outcomes

Table 32 presents the results of the heterogeneity analysis for the main outcomes. When we look at the effects of being in the treatment group, we observe that profits per-week increased in 200.7 pesos in comparison with those of women that do not take the course, at a 5% significance level. Increases in sales per-day and profits per-day of 215.2 and 109.6, respectively, are also observed when the whole treatment group is taken into account.

Further, when we analyze high-skills women, an increase of 202.6 pesos in profits-per-week is observed. The rest of the variables do not exhibit statistically significant differences due to being in the high-skills group.

Analyzing whether the treatment affects differently high and low-skills entrepreneurs, we observe that the interaction is not significant for any of the outcome variables. Thus, the treatment affect in a similar way the outcomes of low and high-skills entrepreneurs.

Table 32 Heterogeneous effects on main outcomes ITT

	(1) Sales per day winsorized	(2) Sales per week winsorized	(3) Profits per day winsorized	(4) Profits per week winsorized	(5) Salaries paid per month winsorized	(6) Inputs expenditure per month winsorized
treated	215.2*	216.5	109.6*	200.7**	146.2	840.8
	(129.5)	(288.8)	(61.62)	(101.7)	(154.3)	(707.3)
High skills	135.6	67.44	104.4	202.6*	128.9	-854.0
	(128.5)	(304.9)	(65.61)	(109.9)	(147.0)	(640.7)

High Skills* Treatment	-167.1	-53.55	-139.3	-56.05	147.6	230.5
	(183.1)	(409.1)	(89.17)	(156.9)	(215.6)	(941.3)
N	2415	2307	2271	2203	2520	2036
control mean	1,499.2225	4,002.6026	651.7808	1,513.0018	1,098.7353	6,898.7112

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

Regarding the main outcomes indexes, Table 33, we observe that total inputs and outcomes indexes improved with an increase of .0520 points. When we observe the effects of high skills women, or on the interacted variable of the type of woman on the treatment, there are no statistically significant changes in any component.

Table 33: Heterogeneous effects on main outcomes indexes ITT

	(1) Sales and profit index	(2) Inputs and salaries per month index	(3) Inputs salaries per month and workers index	(4) Total inputs and outcomes index
treated	0.0291	0.0139	0.0168	0.0520*
	(0.0252)	(0.0115)	(0.0129)	(0.0315)
High skills	0.0186	-0.00330	-0.00787	0.00352
	(0.0271)	(0.0111)	(0.0123)	(0.0333)
High Skills* Treatment	-0.0141	0.00882	0.0105	-0.0180
	(0.0362)	(0.0154)	(0.0174)	(0.0443)
N	2495	2579	2600	2600
control mean	0.3805	0.1184	0.1534	0.5234

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

5. Perception

In we present the results for the variables related to perception. When we observe the treatment dummy, we find a decrease of 0.0567 points on the perception index. However, when the high potential women are analyzed, results show they perceive that they could obtain a maximum loan of 6,056.8 pesos higher, a salary on the labor market of 799.8 pesos higher, and their opportunity cost to close the business is 1,085.5 pesos higher than that of low-potential women. However, when we observe the interacted variable of the type of woman on the treatment, once again, there are no statistically significant changes in any component.

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Table 34: Heterogeneous effects on main outcomes indexes ITT

	(1) Wishes to grow	(2) Max. loan they could get	(3) Opportunity cost of closing business	(4) Expected salary on the labor market	(5) Wishes to close business	(6) Perception index
treated	-0.0103	1646.6	236.1	226.2	-0.00378	-0.0567*
	(0.00869)	(1140.8)	(557.1)	(319.2)	(0.0210)	(0.0307)
High skills	0.000846	6056.8***	1085.5**	799.8***	-0.0198	-0.00830
	(0.00789)	(1704.0)	(538.3)	(308.9)	(0.0198)	(0.0297)
High Skills* Treatment	0.0140	-3865.1*	886.6	390.2	0.00195	0.0593
	(0.0114)	(2339.3)	(771.3)	(459.6)	(0.0277)	(0.0420)
N	2584	2214	2216	2262	2579	3093
control mean	0.9810	20,135.9125	10,503.3581	5,798.8719	0.1463	1.0703

TOT heterogeneity effects.

$$(5)\ Y_{i,t} = \beta_0 + \beta_1 After + \beta_2 Takeup + \beta_3 HSE + \beta_4 (Takeup * After) + \beta_5 (HSE * After) + \beta_6 (Takeup * HSE) + \beta_7 (Takeup * HSE * After) + \epsilon_{it}$$

Where hse_take_up_after is the interaction between the high skills dummy, having accepted the treatment (take-up), and the value of Y at time 2 (after the treatment), we find no significant effects on any variable analyzed using panel data. Tables are shown below.

Table 35: Heterogeneous effects on business practices TOT

	(1) Total index	(2) Modern pricing methods	(3) Accounting methods	(4) Able to do accounting methods	(5) Management index	(6) ICT use
hse_takeup_after	0.0342	-0.00916	-0.116	0.0597	0.0377	-0.00663
	(0.0469)	(0.0854)	(0.0959)	(0.100)	(0.0473)	(0.0984)
N	5683	5693	5693	5693	5683	5665
control mean	0.4745	0.8014	0.7209	0.6223	0.4687	0.3012

	(7) Composite Business Practice Score	(8) Management - marketing index	(9) Management - stock index	(10) Management - records index	(11) Management - finance index
hse_takeup_after	0.0335	0.0322	0.0707	0.0316	0.0278
	(0.0475)	(0.0583)	(0.0631)	(0.0667)	(0.0642)
N	5676	5688	5681	5682	5690
control mean	0.4743	0.4281	0.6058	0.5427	0.4291

Table 36: Heterogeneity in Main Performance Results TOT

	(1) Has closed business	(2) Has opened a new & different business	(3) Doesn't work	(4) PI basic index	(5) New products and ideas	(6) Hours worked per week	(7) Days worked per week	(8) Clients per day
hse_takeup_after	0	0	0	0	0	5.636	1.642	-4.846
	(.)	(.)	(.)	(.)	(.)	(5.582)	(2.224)	(4.126)
N	3090	3090	3090	3093	3026	5654	5669	5680
control mean	0.1549	0.0337	0.0811	1.1483	6.3433	35.5741	5.2808	14.2812

	(9) Products per day	(10) Number of	(11) Unpaid workers	(12) Paid workers	(13) Firm registry	(14) Access to credit	(15) Market reach

		workers					
hse_takeup_after	4.476	-0.303	0.0367	0.290	-0.0610	-0.00884	0.212
	(9.748)	(0.389)	(0.168)	(0.534)	(0.0994)	(0.0951)	(0.141)
N	5679	5655	5670	5676	5372	5681	5586
control mean	26.3023	0.9981	0.2749	0.4858	0.2461	0.2493	1.3238

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

Table 37: Heterogeinety in main outcomes TOT

	(1) Sales per day winsorized	(2) Sales per week winsorized	(3) Profits per day winsorized	(4) Profits per week winsorized	(5) Salaries paid per month winsorized	(6) Inputs expenditure per month winsorized	(7) Productivity per paid worker winsorized
hse_takeup_after	-657.4	-457.9	-227.8	-86.92	-118.5	-1385.9	3191.2
	(603.4)	(1314.2)	(247.3)	(480.4)	(752.2)	(3123.1)	(2720.8)
N	5489	5354	5304	5219	5602	5019	5019
control mean	1,451.3176	3,727.1291	584.7049	1,434.8613	926.4161	7,121.2351	4,789.3379

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

Table 38: Heterogeneity in main outcomes indexes TOT

	(1) Sales and profit index	(2) Inputs and salaries per month index	(3) Inputs salaries per month and workers index	(4) Total inputs and outcomes index
hse_takeup_after	-0.0404	-0.000481	0.0142	-0.0257
	(0.107)	(0.0492)	(0.0539)	(0.141)
N	5577	5671	5693	5693
control mean	0.3230	0.1042	0.1225	0.4393

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

Appendix 8

Comparison of means in crossover analysis

Table 39: Business Characteristics – 75% threshold

Variable	Other Sectors (Mean)	Other Sectors (SD)	Other Sectors (N)	Male Dominated (Mean)	Male Dominated (SD)	Male Dominated (N)	t statistic	p value
clientspday_cleanp99	26.22	28.42	9947	25.79	28.93	251	0.234	0.815
productspday_cleanp99	30.69	30.70	9925	30.38	32.04	251	0.158	0.875
workhwk_me_clean	48.05	17.99	9943	50.07	16.84	254	-1.762	0.078
workdayswk_me_clean	6.01	1.20	9869	6.06	0.98	246	-0.589	0.556
nworkers_clean	**0.37**	**0.87**	**9953**	**0.78**	**1.16**	**252**	**-7.336**	**0.000**
nworkerspaid_clean	**0.17**	**0.68**	**10015**	**0.33**	**0.73**	**254**	**-3.681**	**0.000**
nworkersunpaid_clean	0.10	0.43	10010	0.15	0.50	254	-1.842	0.065
salesday_cleanp99	794.61	1117.79	9028	839.54	1242.49	222	-0.590	0.555
saleswk_cleanp99	3636.97	4935.07	8389	4017.47	5797.27	207	-1.091	0.275
profitsday_cleanp99	302.91	452.67	8051	347.16	517.27	200	-1.360	0.174
profitswk_cleanp99	**1407.41**	**2005.22**	**8337**	**1765.37**	**2381.47**	**203**	**-2.501**	**0.012**
salariesm_cleanp99	**481.12**	**1653.70**	**8466**	**1188.24**	**2490.58**	**186**	**-5.692**	**0.000**
inputsm_cleanp99	7725.28	12487.22	8302	6347.47	14065.70	184	1.476	0.140
bribes_month	2415.17	9803.41	183	2247.80	4334.93	5	0.038	0.970
firmreg_clean	**0.42**	**0.49**	**10020**	**0.53**	**0.50**	**255**	**-3.364**	**0.001**
measure_2	7046.16	35480.10	868	4924.21	22093.18	43	0.388	0.698
salaries_indwk	**283.82**	**1449.77**	**9805**	**599.20**	**1554.96**	**247**	**-3.370**	**0.001**
fininclusion_clean	**0.14**	**0.35**	**9998**	**0.20**	**0.40**	**255**	**-2.561**	**0.010**
index_mgmt_clean	**9.88**	**7.07**	**10002**	**14.68**	**8.26**	**255**	**-10.660**	**0.000**
index_total_clean	**11.75**	**7.49**	**10002**	**16.96**	**8.61**	**255**	**-10.933**	**0.000**

Table 40: Cognitive variables – 75% threshold

Variable	Other Sectors (Mean)	Other Sectors (SD)	Other Sectors (N)	Male Dominated (Mean)	Male Dominated(SD)	Male Dominated(N)	t statistic	p value
edu_clean	**10.59**	**3.81**	**3531**	**12.40**	**3.55**	**345**	**-8.480**	**0.000**
edu_dad_clean	**6.03**	**4.84**	**3198**	**8.23**	**5.17**	**321**	**-7.704**	**0.000**
edu_mom_clean	**5.49**	**4.52**	**3380**	**7.52**	**4.83**	**334**	**-7.765**	**0.000**
total_raven_clean_n	**0.46**	**0.22**	**3576**	**0.52**	**0.22**	**353**	**-4.957**	**0.000**
total_spantest_clean_n	**0.48**	**0.19**	**3587**	**0.52**	**0.20**	**350**	**-3.976**	**0.000**

Table 41: Non cognitive variables – 75% threshold

Variable	Other Sectors (Mean)	Other Sectors (SD)	Other Sectors (N)	Male Dominated (Mean)	Male Dominated(SD)	Male Dominated (N)	t statistic	p value
att1_growth	2.34	1.36	3557	2.45	1.38	350	-1.470	0.142
att1_growth2	0.75	1.45	3557	0.89	1.62	350	-1.688	0.091
att2_satisf	0.39	0.49	3557	0.38	0.49	350	0.300	0.764
att3_optim	0.00	0.00	3557	0.00	0.00	350		
att4_trust	0.51	0.68	3557	0.57	0.71	350	-1.435	0.151
nc_self_ef	6.18	2.45	3546	6.21	2.44	350	-0.213	0.831
nc_loc_con	**8.50**	**2.22**	**3547**	**8.74**	**2.18**	**349**	**-1.938**	**0.053**
nc_impuls	10.35	2.09	3549	10.54	2.02	350	-1.630	0.103
nc_self_con	34.80	8.71	3529	35.68	9.05	349	-1.802	0.072
nc_riskatt	8.33	1.81	3506	8.49	1.67	347	-1.566	0.117

Table 42: Socio-economic variables – 75% threshold

Variable	Other Sectors (Mean)	Other Sectors (SD)	Other Sectors (N)	Male Dominated (Mean)	Male Dominated(SD)	Male Dominated (N)	t statistic	p value
icv_floor	0.02	0.13	3579	0.017	0.130	352	0.038	0.970
icv_roof	0.01	0.10	3582	0.006	0.075	351	0.795	0.426
icv_overcr	**0.08**	**0.27**	**3594**	**0.040**	**0.195**	**353**	**2.746**	**0.006**
icv_water	0.06	0.25	3572	0.051	0.221	352	0.975	0.330
icv_toilet	0.05	0.21	3568	0.063	0.243	351	-1.324	0.185
poor_ext	**0.18**	**0.38**	**3594**	**0.142**	**0.349**	**353**	**1.756**	**0.079**
poor_int	0.22	0.52	3594	0.176	0.462	353	1.490	0.136
hh_size_clean	**4.18**	**1.95**	**3516**	**3.902**	**1.836**	**346**	**2.533**	**0.011**