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# Micro entrepreneurship support programme in Chile

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## **Micro entrepreneurship support programme in Chile**

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## **Abstract**

Using a randomized controlled trial of a large-scale, publicly run micro entrepreneurship program in Chile, we assess the effectiveness of business training and asset transfers to the poor over a period of 46 months. We find that the program significantly increases employment by 15.3 percentage points in the short run (mostly through self employment) and 6.8 in the long run (mostly through wage work). This is consistent with the hypothesis that skills taught during the training lessons are useful for wage work, which is supported by the finding that quality of the intervention positively affects wage work, especially in the long run.

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## Abbreviations and acronyms

FOSIS	Fondo de Solidaridad e Inversión Social
ITT	intent to treat
MESP	Micro Entrepreneurship Support Program
MESP+	Micro Entrepreneurship Support Program with additional funding
PAME	Programa de Apoyo al Microemprendimiento
RCT	randomized controlled trial
SSC	social security card
UI	unemployment insurance



# 1. Introduction

Micro entrepreneurship can be a successful income generation strategy if there is a good business idea, the abilities necessary to develop it exist and there is capital to finance it. From this starting point two types of strategies emerge that encourage micro entrepreneurship: increasing abilities through training and providing access to capital.

As in other countries with increasing financial deepening, low- and middle-income individuals in Chile have wide access to credit through retail stores. Many – 50 per cent of individuals in the first income quintile – take advantage of this type of credit.<sup>1</sup> However, access to loans to finance small-scale business is still limited, especially for individuals who have previously defaulted on loans. Román (2003) shows that there is a linear relationship between access to credit and firm size with the loan coverage rate for micro entrepreneurship at around 45 per cent. Thus, it is possible that many profitable micro entrepreneurial ventures do not start or do not operate at optimal scale because of their limited access to capital.

Furthermore, microcredit imposes risk on individuals and usually requires large short-term returns to make regular payments. In Chile, around 12 per cent of small formal firms close each year<sup>2</sup> and this percentage might be higher for informal and new small businesses. Thus, if promoting micro entrepreneurship is considered as a strategy to increase the income of vulnerable families, it is important to consider who would bear the risk of these initiatives. Microcredit puts the household at risk, whereas asset (or cash) transfers to the entrepreneur place the risk on the donor.

Following on from this idea we examine whether a public program that promotes micro entrepreneurship by providing training and capital can effectively increase the income of the very poor in Chile. We consider a program that considers start-up businesses so that we can assess the effect of training and cash transfers to potential business, rather than only on existing entrepreneurs.

In this context, we implemented a randomized controlled trial (RCT) of the Micro Entrepreneurship Support Program (MESP),<sup>3</sup> a program administered and managed by the Chilean Ministry of Social Development. The MESP has two components: an in-kind transfer of start-up capital of about US\$600 (approximately 4.5 times the monthly poverty line) and 60 hours of training over one month in successful business practices, with follow-up mentoring visits within the next three months. The asset transfer is made in kind so that the entrepreneur can choose the required materials (or inputs) to buy according to the business plan developed during training. Our sample has more than 1,600 applicants, all in the Santiago metropolitan region, who are randomly assigned to different treatment groups. Importantly, individuals do not already have to be micro entrepreneurs to be

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<sup>1</sup> Survey of Consumer Finances, Central Bank of Chile (2007).

<sup>2</sup> Benavente and Külzer (2008).

<sup>3</sup>In Spanish, the program is known as Programa de Apoyo al Microemprendimiento (PAME).

beneficiaries. In our sample about 50 per cent of beneficiaries were not entrepreneurs before the program started. Overall, 66 per cent were employed at the start, either self-employed or working for others.

To obtain evidence about the return on capital, after receiving the first transfer a second treatment group was included. This group received additional capital of US\$240 seven to eight months after the first transfer and training were completed. We call this treatment MESP with additional funding (MESP+). The second transfer can be considered a positive capital shock, as beneficiaries did not expect it until three weeks before it was delivered. This capital assignment can provide information on the return rate of businesses.

To the best of our knowledge, this is the first randomized evaluation of training and different levels of asset transfers for micro entrepreneurship that is not limited to current micro entrepreneurs. Furthermore, as far as we know, it is the first RCT of a public program with these characteristics.

The rest of the paper is organized as follows: section 2 analyzes the context of the evaluation; section 3 describes the intervention and the theory of change; section 4 reports on the program implementation and section 5 presents the impact results. Finally, section 6 discusses the policy recommendations.

## **2. Context**

Micro entrepreneurship programs are worldwide, some of them carried out by private organizations and others by public institutions. In Chile a number of small-scale private initiatives coexist with large-scale publicly run programs. The Chilean Ministry of Social Development started the MESP in 2006. The program is carried out by the Solidarity and Social Investment Fund (Fondo de Solidaridad e Inversión Social (FOSIS)), which depends on the Ministry of Social Development (Ministerio de Desarrollo Social). The program has about 24,000 beneficiaries a year. The program's purpose is to give poor individuals the skills and capital required to generate income through self-employment by developing their own businesses.

This study contributes to an existing literature of business training and asset transfer in developing countries. The evidence on the effect of training on business outcomes is mixed. Karlan and Valdivia (2011) find that business training has no effect on business revenue or profits for microcredit users in Peru. Valdivia (2014) finds positive short- and mid-term effects of business training on revenues and business practice for existing entrepreneurs in Peru. In the Dominican Republic, Drexler, Fischer and Schoar (2010) find that simple rules of thumb increase the likelihood of keeping accounting records, calculating monthly revenues, and separating household and business records. However, more complex training does not affect business practice. Giné and Mansuri (2011) provide training and entry into a large business loan lottery to microcredit clients in Pakistan and find a positive effect of training, particularly for men. The literature usually finds positive

effects on business practice, with only a few studies finding effects on profits: Berge *et al.* (2012) in Tanzania and De Mel, McKenzie and Woodruff (2014) in Sri Lanka (only in the short run).

A body of literature has also investigated the effect of asset and cash transfers on small entrepreneurs. In the case of Sri Lanka, De Mel, McKenzie and Woodruff (2008) have shown that asset transfers, either in kind or cash, increase profits. Additionally, they find evidence that micro enterprises have high yearly returns (55–63%). Following the same strategy of providing asset transfers in kind and cash, Fafchamps, McKenzie, Quinn and Woodruff (2011) found a monthly return of 20–29 per cent in Ghana, and McKenzie and Woodruff (2008) estimate a monthly return on capital of 20–33 per cent for Mexico. Therefore, there is evidence that small entrepreneurs have high returns on capital. These papers, however, have focused on existing micro entrepreneurs. Our paper adds to this literature by investigating the returns to micro entrepreneurship in Chile for a sample composed of the unemployed, self-employed and dependent.

De Mel *et al.* (2014) have studied a program in Sri Lanka that supports the start-up of independent activities by combining training and cash transfers. They find that the program's largest impact is on individuals who were considering starting a small business, not on current small entrepreneurs. Additionally, their results show that training, rather than training plus cash grants, has the largest effects. Our work complements De Mel *et al.* (2014) in several dimensions. The program we analyze focuses on developing a business plan that fully takes into account asset transfer, which increases the likelihood that the transfer will have a positive effect. In the case of De Mel *et al.* (2014), the small entrepreneur does not consider the cash transfer during training, so the training and business plan are not closely tied to the transfer. Furthermore, our research considers two sizes of asset transfers, allowing for increased exploration of return rates.

### **3. Description of intervention and theory of change**

This paper studies the effect of giving business training and asset transfers to poor people who applied to a program with the goal of starting a business or of enlarging an existing one. Two levels of asset transfers are compared to assess the return on capital. The intervention aims to evaluate the impact of a large-scale, publicly run, micro entrepreneurship program, as it is currently implemented, and to assess the impact of additional asset transfers. Hence, the experiment design includes three treatment arms: a control group, a treatment group that received the regular MESP, and a third group that received an additional asset transfer to the MESP (MESP+). A comparison between the first two groups provides an estimate of the program's impact; whereas a comparison between the two treatment groups provides an estimate of the effect of additional capital, conditional on having received the regular MESP training and original asset transfer.

## The Micro Entrepreneurship Support Program

The MESP's target population comprises extremely poor households, specifically those with individuals over 18 years old who benefit from social programs and are unemployed or underemployed<sup>4</sup>. Interested individuals must apply to the program at government agency offices. Applicants show they qualify by filing for a social security card (SSC) and obtaining a score below a certain income threshold.<sup>5</sup> Our sample consists only of beneficiaries of the Chile Solidario, which is the Chilean government's main anti-poverty program. This allows us to concentrate on the extremely poor. Our sample consists of individuals who applied for the MESP in 2010 in the Santiago metropolitan region.

The program has a training as well as an asset transfer component. The training component of the program runs for four months. The first three weeks consist of 60 hours of intensive formal training in micro entrepreneurial skills. The rest of the time is allocated to mentoring visits, as described below. The training sessions teach business planning tools and basic administrative skills, such as keeping records of sales, prices and expenses. All MESP graduates must have an attendance rate of 90 per cent. This means that participants can miss up to two of the 12 sessions. During the three-month mentoring period the implementing institution visits beneficiaries three times by to follow up on businesses' performance and to provide managerial advice.

After the formal training, financial support is provided in the form of an in-kind transfer of about US\$600, which the beneficiaries can spend on machinery, raw materials or other inputs.<sup>6</sup> The trainer can go with the entrepreneur to purchase these inputs or the entrepreneurs can produce a receipt as proof of expenditure. The amount of funding is standard and does not differ by type of business, economic sector or geographical location.

Institutions providing the training are selected through a bidding process. These organizations include private institutions such as foundations or tertiary education institutions accredited by the government. The chosen institution provides all services as a package, with standardized protocols for this provision. These protocols include the content of the classes, a maximum class size of 20 students, transportation subsidies and childcare.<sup>7</sup>

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<sup>4</sup> Underemployment is loosely defined by the government implementing agency FOSIS. In general, it involves occupations with low income and few working hours.

<sup>5</sup> The social security card (SSC) is the *ficha de protección social*, which measures economic vulnerability. The government agency sets the threshold on the SSC scale, according to the applicant's economic resources, needs and risk factors. The SSC score goes from 2,072 to 16,316 points, with a lower number indicating a higher degree of vulnerability. The threshold for the MESP was set at 8,500 points, corresponding to the lowest 20 per cent of scores. People below this threshold are eligible for the program.

<sup>6</sup> The amount they receive is Ch\$300,000. A maximum amount of 10 per cent could be received in cash or as working capital. This amount is about 4.5 times the poverty line.

<sup>7</sup> To study the level of achievement of all the training protocols, we set up a call center and randomly selected a small number of beneficiaries (89) for a short telephone survey. Out of the 71 successfully interviewed almost all had received the transport subsidy, reported that a day care center was available, and thought that the content of the training was useful for their business. We also randomly supervised training sessions for evaluation participants, observing that the protocols were correctly implemented. These results confirm that the agencies providing the training met almost all the requirements of the program, reducing potential treatment heterogeneity.

### **3.1 MESP with additional funding**

The additional funding component was implemented specifically for this study, corresponding to a lump sum of US\$240,<sup>8</sup> to be given to beneficiaries in addition to the US\$600 received under the normal MESP. As with the initial transfer, recipients could use the extra grant for equipment or inventory, and were escorted by staff from the implementing institution or were required to produce receipts. The additional resources were delivered seven months after the end of the MESP and beneficiaries were required to spend these resources according to the business plan developed during training. Individuals who received the additional funding did not know about it during the MESP and therefore did not consider this additional transfer when planning for their first round of funding.

Comparing beneficiaries assigned to the MESP+ to the normal MESP allows us to estimate capital return rates conditional on having previously received the MESP. This comparison would measure the response to a positive capital shock.<sup>9</sup>

### **3.2 Theory of change**

As discussed above, the underlying theory of change relies on the assumptions about the limitations micro entrepreneurs face, which they can overcome by participating in the MESP program. More explicitly, the MESP program aims to provide individuals with entrepreneurial skills and capital. Given that the program teaches individuals how to run and improve their business, a key element to evaluate is whether individuals are actually involved in entrepreneurial activities (self-employment). However, the program also reinforces general human capital basic skills, such as responsibility, punctuality and persistence. This could help individuals to improve their performance as wage earners. Given that individuals are extremely poor, the program also considers it a success when employment comes from dependent work.

Given that participants in the MESP program have very low incomes, increasing their earnings by working longer hours would benefit them significantly. To this extent, it is important to evaluate the impact on working hours and hourly income. This is because if the participants were to benefit from the program through different channels, it is important to ascertain whether their business activities would be profitable enough to justify working longer hours.

As discussed above, assessing whether individuals can be considered to have become effective entrepreneurs is a research question in its own right. It is expected that business training sessions could be an effective tool to make entrepreneurs more profitable in their businesses. This means that courses need to be appropriate and beneficiaries can take advantage of them.

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<sup>8</sup> US\$240  $\approx$  Ch\$120,000.

<sup>9</sup> Alternatively, one could study the effect of different asset levels, announcing the amount during the training so that this knowledge affected the business plan. The comparison would be interesting but would not provide data on the return on capital.

In parallel, the extent to which micro entrepreneurs are capital constrained plays a key role in this study. In fact, the MESP+ assumes individuals may benefit significantly by accessing more costless capital. If this assumption holds true, it would be expected that MESP+ beneficiaries would outperform MESP beneficiaries significantly.

Finally, an important question related to all the above mechanisms is the degree of impact heterogeneity. More precisely, the different ways that beneficiaries benefit from the program could depend on individuals' characteristics. This is, for example, that initially low-income beneficiaries could benefit more because they lack employment; that higher-educated or numerically literate individuals could better learn business practices; or that capital transfers would benefit existing entrepreneurs more from because their key limitation is capital. Accordingly, Table 1 shows the summary of outcomes to be studied.

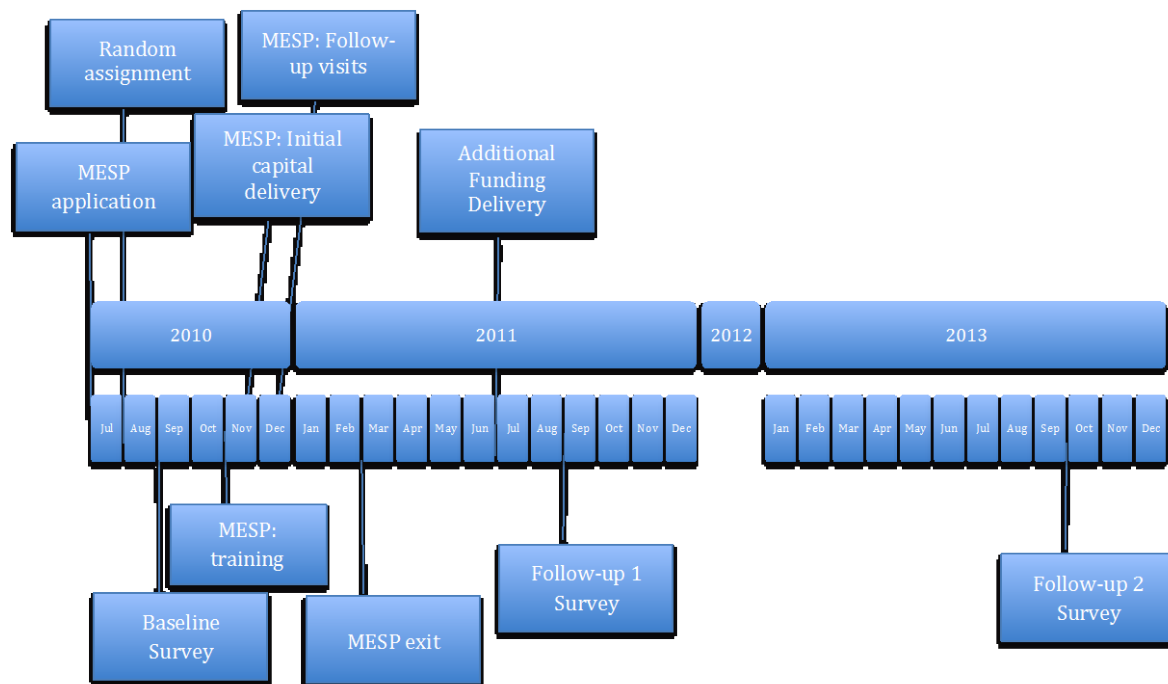
**Table 1: Outcomes of interest and heterogeneous impacts**

Outcomes of interest	Heterogeneous impacts
Employment	Quality of intervention
Self-employment	Education
Labor income	Numeracy index
Self-employment income	Income from independent activities
Working hours	Income from dependent activities
Hourly labor income	
Business practices	
Empowerment	

#### 4. Program implementation

Our study consisted of an evaluation of the MESP and MESP+ in the Santiago metropolitan region in 2010 using a RCT approach. Figure 1 shows the intervention calendar.

**Figure 1: Timeline of the program and evaluation**



The study was designed to evaluate the MESP as it was currently implemented, and to identify returns on capital for different asset transfers after receiving business training. It was politically impossible to separate the training and capital components to assess the effectiveness of each individual intervention, so we extended the asset transfer instead. The program intervention was implemented in the Santiago metropolitan region, because it allowed for better monitoring and supervision of the project. As the first ever randomized controlled trial of a public program in Chile, the government agencies needed constant handholding by the research team to implement the intervention.

The MESP was offered at least once a year. We randomly assigned individuals who applied to MESP to three treatment arms:

1. control group
2. access to the MESP
3. access to the MESP+.

We stratified applicants using four quartiles of the SSC score and residence municipality.<sup>10</sup> There were 18 MESP courses in total, and individuals from the same municipality were all enrolled in the same training course, where there may also have been participants from other municipalities. Individuals who were not chosen for the MESP (control group) received a letter from FOSIS indicating that they had not been selected due to excess demand but could apply again the following year.

<sup>10</sup> The four groups were built using three SSC score cuts: 2,168, 2,298.5 and 3,445 points. Note that the upper limit to enter the program was 8,500 points. The applicants are concentrated in the lower part of the SSC score so that the study focused on the high degree of vulnerability of the program participants.

The treatment arms were implemented with a total of 1,948 individuals. Table 1 shows that 566 individuals were randomly assigned to the control group, 689 to the normal MESP (T1) and 693 to the MESP+ (T2). Limiting the sample to individuals for whom the follow-up survey was available, the numbers in each treatment arm were 490, 593 and 629 respectively. The intervention was conducted between October 2010 and February 2011.

Comparing T1 to the control group provided us with the impact of the current, regular MESP; this was the overall effect of the training and the in-kind transfer jointly. The effect of T2 versus the control group allowed us to estimate the impact of the regular MESP with additional in-kind transfer. Comparing T1 to T2 would provide the effect of additional funding conditional on having received the regular MESP. Nevertheless, we also considered the overall effect of MESP and MESP+ to gain power in the long-term assessment and to avoid issues of differential attrition.

We collected data through household surveys.<sup>11</sup> The baseline survey took place between August and October 2010 with a 94 per cent response rate. The first follow-up survey took place between October and November 2011, 12 months after the MESP started and two months after the MESP+ was delivered, with an 88 per cent response rate. The long-run follow-up survey took place between September and December 2013, 36 months after the program started and more than two years after the MESP+, with a 77 per cent response rate.<sup>12</sup> We address balance among treatment groups and attrition in the following subsections.

We also used high-frequency administrative data from the contributions to the unemployment insurance program (UI). These were used in the analysis as an independent source of formal wage employment. The UI administrative data include information about the jobs covered by the UI system (formal jobs) and the wage received in each job relationship on a monthly basis.<sup>13</sup> All new contracts (since the law started in October 2002) are captured by the UI. We merged this monthly data for the period September 2010 to June 2014, allowing us to study the impact on formal employment 41 months after the MESP's implementation, and 46 months since its start.

Importantly, during the period we analyze, the Chilean economy exhibited high growth rates and decreasing unemployment. While the GDP (gross domestic product) grew at 5.8 per cent in 2010 and 2011, 5.5 per cent in 2012 and 4.2 per cent in 2013, unemployment

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<sup>11</sup> To avoid benefit-seeking answers and ensure instrument reliability, an impartial third party conducted the surveys. The implementation of the survey was clearly confidential, and it was emphasized that there was no link between survey answers and individuals' eligibility for social programs.

<sup>12</sup> These response rates are calculated over the randomized population.

<sup>13</sup> The only type of formal work that is not included are those jobs that had a contract signed before October 2002 and where people were still employed under the same contract. Since those are long-term contract jobs, it is very unlikely that somebody in our sample is in that situation, which implies that all other formal jobs should be captured in the UI data. Also, jobs in the public sector are not captured by the UI data because public servants do not have access to the UI.



rates in greater Santiago decreased from 7.9 per cent in December 2010 to 6.2 per cent in December 2011, 5.2 per cent in December 2012 and 6.2 per cent in December 2013.<sup>14</sup> This is a favorable economic situation, which needs to be considered when analyzing the results and making recommendations.

#### **4.1 Balance among treatments and control groups**

We used baseline survey data for variables of interest to test if random assignment to the groups was effective by comparing the means for the subsample interviewed in both waves. In table D1 (Appendix D), we show the mean values for the control group, treatment MESP (T1), and treatment MESP+ (T2). In the last four columns, we show the p-values for the test of differences in means, comparing T, T1 and T2 against the control group, and T1 with T2.

Individuals' characteristics in each treatment group are presented in table 2. About 95 per cent of beneficiaries are females and an average age of 36 years old. Approximately 31 per cent of individuals have only completed primary education, while between 4 and 7 per cent have some tertiary education. The average SSC score is between 3,447 and 3,451 points, well below the entrance threshold requirement of 8,500 points. None of the observed differences in individual characteristics among treatments are statistically significant at the 5 per cent level. That beneficiaries had, on average, low education levels and were highly economically vulnerable (according to the SSC score) indicates that the MESP fulfilled its goal of targeting poor individuals.

With regard to employment variables, 66 per cent reported being employed at baseline and about 50 per cent reported being self-employed,<sup>15</sup> with no significant differences between treatment arms. Average monthly labor income was approximately US\$97 to US\$116 and there was a significant difference only between T1 and T2 (p-value=0.02), but not statistically different compared to the control group. This imbalance in income came from larger self-employment income in T2. Using the UI data, we estimated the average number of months for which an individual had a formal job during 2009 and the monthly formal wage earned during the same period (before the intervention). We observe that on average individuals were formally employed for just over a month during 2009, and their average monthly income was US\$44. No differences are seen between treatment arms.

It is also worth noting that other variables are also well balanced. For example, risk aversion and numeracy indexes do not exhibit significant differences among treatment groups. In light of the evidence, the randomization seems successful in generating well-balanced treatment groups. Our analysis therefore used the random assignment to estimate the treatments effect.

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<sup>15</sup> Individuals can report more than one occupation and they can declare themselves to be wage earners in one and self-employed in another. We classified individuals as self-employed if they had any income from independent activities. The same was done for wage earners. Therefore, individuals with both types of jobs will appear as wage earners and self-employed.

These summary statistics also shed light on the special characteristics of the applicants with respect to the eligible population. Applicants were overwhelmingly women and a significant number of them worked.<sup>16</sup> Therefore, the external validity of the MESP impact should be carefully considered and potential extensions of the program need to take these characteristics into account.

## 4.2 Attrition assessment in the follow-up

In table 1, panel B we observe that the response rate for all rounds is slightly higher for the treatment groups ( $T = T1+T2$ ) relative to the control group (74.3% vs. 72.4%), but the difference is not statistically significant (p-value is 0.40, see panel C).

However, the smaller attrition rate of the MESP+ group compared with the control and the MESP groups (77.4% vs. 72.4% and 71.2%) is statistically significant (panel C), indicating that attrition rates vary by treatment group.<sup>17</sup> Hence, the results we obtained for the MESP+ in the following section must be interpreted with care. For instance, one could argue that individuals were more likely to answer the follow-up survey when they were performing better. Thus the higher response rate for the MESP+ could result in overestimating the effect of the additional transfer. In section 5 we calculate bounds using Lee's (2009) methodology, which allows us to control for endogenous attrition and to analyze the potential impact of different response rates.

## 5. Impact results

The following results were obtained using survey data from the randomized sample in 2010, 2011 and 2013.<sup>18</sup> To control for observable heterogeneity, the sample was stratified by community of residence and SSC score. Additionally, we follow Humphreys (2009) by weighting observations by their probability of being assigned to its treatment group by strata. This technique is implemented to avoid bias when estimating causal effects in the presence of heterogeneous assignment probabilities.<sup>19</sup>

Regarding take-up of the program, in the first treatment arm (MESP) 23 per cent of the assigned sample did not finish the program's training component, and this magnitude was somewhat smaller in MESP+ (21%). However, there was 100 per cent take-up of the

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<sup>16</sup> Female labor participation and employment in Chile is 43.5 per cent and 39.3 per cent respectively (according to 2011 Casen national survey).

<sup>17</sup> To assess if attrition depends on observables we follow Fairlie, Karlan and Zinman (2015). We regressed the follow-up dummy on the treatment variables and on a set of observed characteristics in the baseline and on the same characteristics interacted with the treatment variables. Then we performed an F-test on the interaction coefficients. The p-values for the F-tests are 0.58 for the MESP and 0.77 for the MESP+ (table 1, panel D), so we cannot reject the null hypothesis that the observables have no effect on attrition.

<sup>18</sup> Statistics of attrition are presented in table D2.

<sup>19</sup> Humphreys (2009).

program's grant in MESP, and for the second treatment arm only one participant did not take up the transfer. The program provided for at least three visits during the mentoring period. Unfortunately, while measuring take-up we do not account for the program's follow-up visits during the mentoring period, which would have allowed a better understanding of the participants' level of engagement with the intervention. Considering all these features, the implementation of the program does not allow a direct calculation of an average treatment effect, which would have represented the average effect of the program on a random participant. Therefore, the estimations further presented can be interpreted as intent to treat (ITT), which represents the average effect of offering the program for a random participant.

## **5.1 Labor market effects**

The ITT on employment and income are reported in Table E1 (Appendix E). Columns (1) and (2) report the 9-month and 33-month effects respectively. In 2011 (9-month results) there is a 22.7 percentage point increase in the probability of being self-employed (the average in the control group is 42%). There is also a 5.0 percentage point decrease in dependent employment. Together, these effects imply a significant increase in total employment of 15.3 percentage points. The impacts on income (panel B) are consistent with these employment effects. There is a substantial increase in self-employment and total income. Total labor income increases by US\$70 (from US\$133 for the control group), corresponding to a 52.7 per cent increase. Self-employment income increases by US\$58.4 (from US\$64 for the control group), corresponding to a 91 per cent increase. There is also an increase of six hours in the amount of hours worked weekly (from 19.8 for the control group).

The long-term effects show different patterns (table E1, panel A, column 2). It is important to note that there is an increase of five percentage points in employment between 2011 and 2013 for the control group as well, so the identified program impact is on top of this substantial increase and therefore more difficult to identify. Although there is still a positive and significant effect in total employment of 6.8 percentage points, this is smaller than the short-term effect. With regard to the type of employment, there is an increase in self-employment and dependent employment of 5.7 and 4.8 percentage points respectively.

The long-term impact on total labor income is US\$34 (from US\$198 for the control group), an increase of 17 per cent (table E1, panel B, column 2). Although this long-term effect is smaller than the short-term effect, it is a substantial impact three years after the intervention.

The employment and income results therefore show a perhaps unexpected mechanism by which the MESP increased employment. One year after the intervention there is an expected increase in self-employment, which not only comes from formerly unemployed individuals but also from a decrease in wage employment. In the same period, there is an increase of labor income exclusively from self-employment income. Three years after the intervention, the effect in self-employment decreases and wage employment rebounds

unexpectedly. Taken together, we still find a significant employment effect. Three years after the intervention, the income increase comes from an unexpected channel. Self-employment income does not significantly increase, whereas wage work income increases by 17 per cent in relation to the control group.<sup>20</sup>

This puzzling path could be the result of the training process, which could have provided the participants with skills that are effective for self-employed workers and wage workers. For example, being able to read and prepare a budget could be useful in the wage sector in the long run.

The results in table E1 show a dynamic labor market. Employment is increasing overall, and there is movement between self-employment and wage work. We use the UI high-frequency administrative data mentioned above to study the effects of the program on formal wage employment and corresponding wages month by month. The data was also used to further study the dynamics of the labor markets and how the MESP could have affected them over a longer time period, and to check the results of the survey data with an independent and reliable source,

The UI formal employment definition differs from our definition of wage employment in several respects. Wage employment includes housekeeping services, which are not included in the UI data. Also, the UI data only cover individuals with contracts, whereas our definition of wage employment includes jobs with and without a contract. Therefore, in principle, the UI employment is a subset of our definition of wage employment used in the survey.

Figure E1 and table E5 show the results for each month (September 2010–June 2014). Figure E1 shows the coefficient obtained from regression (1) on employment (left figure) and earnings (right figure) in percentage points relative to the control group levels. Two important findings can be observed from this monthly frequency data. First, there are negative effects on wage employment and income from September 2010 to the end of 2012, though they are only significant in a few months at the beginning of that period, which partially coincides with the training period. Second, during the years 2013 and 2014 the program had positive effects on formal employment and earnings, and the effects on earnings tend to be statistically significant more often than the results on employment.

The increment in wage work for the control group with respect to MESP recipients from September 2010 to February 2011 – that is, since the MESP announced its beneficiaries until the end of the program – is consistent with non-selected individuals looking for formal employment once they were not offered a place on the program. It is also consistent with beneficiaries stepping out of the labor market for the MESP training. The range of the drop

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<sup>20</sup> There is a heterogeneous treatment effect that depends on baseline employment in the short run: unemployed individuals at the baseline are more likely to be self-employed and employed. However, in 2013 there are no differences in self-employment by labor status at the baseline (see table E6).

in formal employment goes from 5.6 percentage points in October 2010 to 3 percentage points in February 2011, and corresponds to around one-third of the control group wage employment. The decrease in wage employment does not always translate into earnings. In two of the months, October and November 2010, there was a significant drop in earnings of US\$20 and US\$13 respectively. Between March 2011 (once the program had finished) and the end of 2012 the negative effect persists, although for most months it is not statistically significant. Therefore, the program seems to generate a substantial substitution away from wage employment during the program period and this effect persists for almost two years. If during the first months of the intervention the beneficiaries are not actively working on their business, or if during these two years these businesses do not generate enough income, this negative employment and income effect should be considered as part of the cost of the intervention.

The analysis of the UI data also shows that MESP successfully increased wage employment and income between January 2013 and June 2014 (the most recent available month). In the same period, the effects are statistically significant for earnings more often than for employment. The ITT estimate for employment is significant at the 10 per cent level in five of the months, while for earnings the ITT estimate is significant at the 10 per cent level in 10 of the months. This suggests that the program not only facilitated finding a formal wage job but also had an effect on the productivity of the beneficiaries. In terms of the magnitude of the effects for the 2013–2014 period, the ITT estimates for employment range from 2.6 to 4.8 percentage points (see table E5), which is consistent with the results in table E1, where dependent income increased by 4.8 percentage points, according to the 2013 survey. The ITT effects for earnings during the 2013–2014 period ranges from US\$17 to US\$29 (see table E5), which are also consistent with the increase of US\$19 found for dependent earnings in table E1.

Overall, the results with survey and administrative data show that MESP increased employment and income. The survey data show this is the case one and three years after the intervention. Furthermore, the administrative data report positive effects in wage employment four years after the program took place. This contrasts with most papers in the literature, which usually report positive effects on employment in the short run but which disappear in the long run. However, we find that the effects on self-employment decrease over time, although a boost in wage employment partially compensates the self-employment decline.

Furthermore, the long-term administrative high-frequency data allow us to determine that the short-run decline in wage work, also found by De Mel *et al.* (2014), vanishes in the medium run and turns into an increase in the long run. The result that a micro entrepreneurship program could positively affect wage work in the long run (approximately four years) is new to the literature and we discuss the possible channels that explain these results in the following sections.

## 5.2 Business practices and assets

Considering the MESP as a combination of business training and asset transfer, we study its effects on business practices and assets accumulation measured in the 9-month and 33-month follow-up surveys. Effects in business practices and/or asset accumulation would shed light on the mechanisms through which the program worked.

We follow De Mel *et al.* (2014) in using several questions to create different indices for business practices in four categories: marketing, inventories, records and financial planning.<sup>21</sup> For example, the following questions are used to measure marketing, record keeping and planning practices respectively:

- During the past three months, have you asked your clients if they would like your business to sell a new product or offer a new service?
- Have you calculated the cost of your main products?
- Have you made a budget for next year's costs?

For instance, for marketing practices, we created a dummy variable equal to one if a particular marketing practice was used, and then added this to other questions related to marketing practices. This allowed us to build a marketing index that goes from 0 to 9. A similar procedure was used for each business practice dimension (see table E11 for details).

We also collected data on the amount of cash available for business expenses and we have information from independent reports collected by enumerators during the follow-up visits regarding the existence of inventory and register books.<sup>22</sup> This could be a better outcome measurement if training affects the quality of reporting, but not behavior. For example, in an extreme case, what is found in self-reported outcomes could simply be an improvement in the quality of self-reporting and not a change in behavior.<sup>23</sup>

The impacts of the MESP on business practices are presented in table E2. The ITT estimates consistently report a positive effect of the treatment on all business practices, in self-reported ones as well as on those the enumerator reported. A year after the program ended all business practices had improved. For example, available cash increased by US\$44 dollars (column 2), which is equivalent to three times the cash available among the

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<sup>21</sup> We thank Christopher Woodruff for facilitating the questionnaire. The specific questions used in the construction of each variable are reported in table E11.

<sup>22</sup> These questions are asked only if the interview was conducted at the business.

<sup>23</sup> This measurement reporting problem could bias our results in either direction: individuals with training might learn about the business practices (including how to compute profits) and then improve their reporting. In the case of profits, the knowledge might increase or decrease their estimated profits. For example, if they had not been including their wages, then profits would appear lower once they included wages, but if they were not accurately computing their sales, profits might be larger once they had made that change. We have different strategies to address these potential problems. In the case of business practices, we include a report by an enumerator. However, we could not directly derive income numbers by observing the entrepreneurs because our large sample size would make this too costly.

control group, and the ITT for business practices is almost twice that of the control group. These large effects can be in part explained by the increase in self-employment for 2011. Nonetheless, in 2013 there is still an impact on practices despite the fact that self-employment fell. For instance, in 2013 (column 4) the ITT estimates of marketing practices is 0.4 and for inventory management it is 0.2, which represent increases in relation to the control group of 24 per cent and 27 per cent over the control group, respectively. There is also an US\$18 increase in the cash available and a 35 per cent increase in the use of a book registry. These results show that the training seems to have affected the practices of small entrepreneurs for at least three years after the training.

On the other hand, panel B shows that 33 months after the intervention there are no differences in the amount of assets between the groups. Therefore, the program was not able to create a permanent increase in capital among its beneficiaries, despite the transfers made by the MESP and MESP+. This is consistent with the absence of effects in self-employment income in that same year.

### **5.3 Heterogeneous effects**

The increase in dependent employment in the long run could be caused by training that provides a set of skills that are useful for self-employment as well as for wage employment. As we argue in section 3.1, at least 40 of the 60 hours of training could be considered useful for wage work. For example, the training considers budgeting, marketing strategies, developing a business plan and other relevant activities. This training can increase the understanding of business in general, adding value to workers and increasing their attractiveness in the wage labor market. Moreover, most of the beneficiaries put this training into practice during 2011 as self-employed workers and this job experience could have added value to these skills.

Then, if the training provides skills that are also useful for wage work, higher quality training would have a larger effect in wage employment. Although the MESP's content in the training lessons is homogeneous, the quality of how the training is executed varies. We measure training quality with the program's graduation rate and a quality score index constructed by the implementing agency (FOSIS). The graduation rate is an indirect measure of training quality because beneficiaries are more likely to graduate if the training is of better quality. The quality index evaluates whether the program's requirements are satisfied. For example, it incorporates factors such as whether the program started and finished on the proposed dates, whether material was delivered to the beneficiaries, the human resource available, the appropriateness of the methodology used by the training company, and the quality of products and services delivered to the beneficiaries.<sup>24</sup> The graduation rates range from 48.5 per cent to 97.5 per cent, and the quality index ranges from eight to ten.<sup>25</sup>

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<sup>24</sup> In table E12 we present a detailed explanation of all items considered in this evaluation.

<sup>25</sup> For data completeness and estimation purposes, we impute quality indicators to the control group by averaging the quality indicators of the individuals selected for treatment who live in the same municipality.

Tables E3a and E3b show the coefficients for the heterogeneous effects in 2011 and 2013 respectively. In 2011 the quality index had an effect on self-employment and total labor income. In 2013 the two measures of quality are positively related to wage employment and total employment and their corresponding income measure. Furthermore, the quality index has a positive effect on self-employment income. Therefore, three years after the intervention, higher quality training increased the probability of having a job as a wage earner and wage employment income, whereas this is not the case for self-employment. This result is consistent with the hypothesis that the skills taught during the training are transferable to wage work.

If beneficiaries is moved from a training with a quality index equal to 8 (the worst index) to a training with a quality index equal to 10 (the best index),<sup>26</sup> they would gain US\$100 in monthly labor income in 2011 and US\$95 in 2013. In the later year, the probability of being a wage worker or employed would increase by approximately 16 percentage points and the monthly dependent income would increase in US\$50.<sup>27</sup>

An important caveat that has to be taken into account is that, as described previously, during 2013 the Chilean economy experienced high growth rates and a tight labor market, which could have amplified the effects of the program.

#### **5.4 Different levels of transfers**

The research design allows us to compare program effect on employment by different levels of asset transfers. As reported in section 4.2, attrition in the MESP+ is lower than in the MESP and control groups. This is considered in the analysis by constructing lower and upper bounds for the treatment effects.

Following Lee (2009), we make the monotonicity assumption that receiving additional funding affects sample selection in only one direction. In our case, this implies that some individuals would have participated in the follow-up survey only if they received additional funding, but that additional funding did not deter certain individuals from participating in the follow-up survey. The bounds are constructed by trimming the distribution of the dependent variable where the percentage of the trimming is equal to the difference in the attrition rates between the MESP+ and the two other groups, divided by the response rate of the additional funding group. In our case, that number is 4.7 per cent (according to figures in table D2). Therefore, for the lower (upper) bound we randomly trim 4.7 per cent of the individuals with dependent values equal to one (zero) in the MESP+ group. Table E4 presents the relevant comparisons: panel A reports results without considering the differential attrition while panels B and C report results for the lower and upper bounds

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<sup>26</sup> The calculation consists in multiplying the quality index by two, which is the difference between the index of the best and the worst trainings.

<sup>27</sup> An analogous exercise can be done by moving the graduation rate from 48.5 per cent to 97.5 per cent. The corresponding effects in 2013 are of 24.5 and 29.4 percentage points for wage employment and total employment respectively and US\$98 and US\$147 for wage and total labor income respectively.



respectively.<sup>28</sup> The MESP and MESP+ substantially increase self-employment nine months after the intervention by 17.8 and 27.8 percentage points respectively (columns 2 and 3), with the MESP+ effect being statistically different than the MESP effect and robust to the lower and upper bound scenarios. These large effects are relevant considering that 42 per cent of the control group were self-employed 12 months after the intervention (column 1). Therefore, in the short run, a larger asset transfer increases the number of individuals in self-employment. The same transfer decreases the probability of being a wage worker by 6 percentage points with respect to the control group, but we cannot discount that this effect is the same between the two transfer levels ( $p=0.30$  without considering the differential attrition). There is a robust increase in total employment for both treatment arms of 11.5 and 19.3 percentage points of the MESP and MESP+ (control group=65.5 per cent, column 1), and the MESP+ has a statistically different effect than the MESP.

Columns (5)–(8) report similar results for the 33-month follow up. Only the MESP+ has a statistically significant effect on self-employment (7.9 percentage points). However, we cannot rule out that the effect of MESP and MESP+ is the same on this outcome ( $p$ -value=0.14 without considering differential attrition). On the other hand, the MESP increases the fraction of dependent work by 9.5 percentage points (it is 33 per cent for the control group) and we can rule out that this effect is the same for the MESP and MESP+ in all scenarios (panels B and C). Finally, both treatment arms increase total employment: the MESP by 8.4 percentage points and the MESP+ by 6.2 percentage points, and this effect is not statistically different between them ( $p$ -value=0.25 not considering attrition).

Therefore, in the long run the combination of training with both asset levels increases employment, but the MESP does it through wage employment, and the MESP+ through self-employment. This latter result, however, is not robust to all specifications. The additional transfer was successful in the short run in keeping self-employment functioning at higher levels than the MESP alone and resulted in an overall larger employment level, but slowed the movement from self-employment to dependent work that occurred for the MESP group. In other words, the additional transfer might have created hysteresis in self-employment that lasted at least two years and could explain the differences in wage employment between the MESP and MESP+ groups in 2013.<sup>29</sup>

We can compare the impact of the MESP and MESP+ in formal wage employment using the UI data. For each month from September 2010 to June 2014, we calculate the upper and lower bounds of each treatment arm for formal employment and earnings. These bounds are presented in Figure E2 for wage employment (left figure) and wage income (right figure). As expected, the bounds for the MESP are irrelevant, because they only

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<sup>28</sup> Note that the point estimates of the MESP change in panel B and C due to sample change.

<sup>29</sup> In terms of labor income, in 2013 the MESP had a significant and larger income than the control group. The income of the MESP+ group was not different from that of the control group. However, from the bound analysis, we cannot deny that its income level was similar to the MESP group (results available upon request).

reflect the sample change produced by the trimming of T2. On the other hand, the trimming of T2 generates a substantial wedge between the upper and the lower bounds. Note, however, that the point estimates of the MESP on wage employment and income are above those of the MESP+ for almost every month.

The point estimates are presented in tables 10 and 11 for employment and income, respectively, and we compare those effects in tables 12 and 13. For only a few of the months we find that at the same time that the effects of the treatment arms are statistically different, one of the arms is by itself statistically significant. For employment, only for March 2013, there is a significant difference at the 10 per cent level between the MESP and MESP+ (see table 9), and one of the treatments is significant for both the upper and lower bounds (see table E7). In this case the MESP had a larger effect on formal employment than the MESP+. For formal earnings, for three of the months there is a significant difference between treatment arms (June 2012 and December 2013 at the 10 per cent level, and May 2013 at the 5 per cent level; see table E10), while at the same time the MESP has significant effects on earnings (June 2013 and December 2013 at the 10 per cent level and May 2013 at the 1 per cent level; see table 8). Then, for only a few months we find that the MESP had a larger and more significant impact on formal employment and wages than the MESP+, which is consistent with the results in table E4.

## **6. Policy recommendations**

Micro entrepreneurial programs targeted at the poor revolve around two objectives: providing entrepreneurial skills and granting access to capital. Armed with these resources, poor individuals should be able to establish (more) successful businesses, allowing them an opportunity to escape poverty. However, there is little evidence to suggest that interventions that include both training and asset transfers actually meet these goals for enrollees, particularly for government-run programs. Furthermore, the evidence has focused on interventions for current entrepreneurs and little is known about effects on the broader population.

The rationale underlying an asset transfer, as an alternative to microcredit, is to change who bears the risk of the business. In the case of microcredit, small entrepreneurs need to take a risk, which might stop risk-averse individuals. Alternatively, asset (or cash) transfers to the entrepreneur impose the risk on the donor. Our results show that the strategy of putting the risk on the donor can create and increase micro entrepreneurship among the extremely poor.

We study the effects of an intervention that provides training and two levels of asset transfers to vulnerable individuals in Chile, regardless of their baseline activity. To the best of our knowledge, this is the first evaluation of a large-scale public program with these characteristics, where only half of beneficiaries were self-employed before the program.

Our results show that the MESP, regardless of the transfer amount, significantly improves beneficiaries' labor income and employment in the short and the long run. The program increases employment, and particularly self-employment, by 15 and 23 percentage points respectively in the short run. In the long run these effects persist with lower magnitudes: 7 percentage points for employment and 6 percentage points for self-employment. Moreover, the program increases labor income by 53 per cent and 17 per cent in the short and long run respectively, but the long run effect comes only from dependent labor income. It is worth mentioning that these results are supported by similar findings using administrative data. In addition, we find that the program significantly improves short- and long-run business practices in marketing, stock, records and financial planning. However, the program does not seem to have an effect on several measures of female empowerment, such as household budget decision making, generally, or children's education, specifically.

An interesting result is the positive long-term effect of the program on dependent employment. More detailed analysis shows that quality matters. Programs with a higher degree of quality (measured by graduation rate or by a quality score index) generate a positive impact in wage work after three years of implementation, which highlights the relevance of the training component of the intervention.

When analyzing the separate effect of different levels of transfers, we can say that both treatment arms (MESP and MESP+) have a positive short-term impact on self-employment, reaching 27.8 percentage points in the case of MESP+. However, in the long run, both treatment arms impact positively on employment but through different channels. While the MESP+ increases self-employment by 7.9 percentage points after 33 months, the MESP does the same but on dependent employment (9.5 percentage points). As previously mentioned, the additional transfer was successful in the short run in keeping self-employment functioning at higher levels than the MESP alone. This resulted in an overall larger employment level but slowed the transition from self-employment to dependent work, which occurred for the MESP group.

These results allow us to derive four lessons:

1. The program has a positive long-run effect in employment and labor income that is significant compared to other studies. The cost-benefit analysis of the program can be computed comparing the labor income increase with the program's cost. A back of the envelope calculation shows that the MESP cost per participant of US\$1,320 (according to the implementing agency's figures) is recovered in 27 months.<sup>30</sup> This is a relatively short period compared to other successful programs. For example, De Mel *et al.* (2014) calculate that a training program in Sri Lanka can recover its costs in 12 months, but that a training plus cash program could take up to 48 months.

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<sup>30</sup> Considering the increase in labor income of US\$70 in the short run and US\$34 in the long run and making simple linear interpolation.

2. The quality of the program is important. While the content of the training is important, how the training is delivered is crucial beyond what is covered in training. We observe that high-quality training delivery leads to larger employment effects, particularly in wage employment. Moreover, that the quality of the intervention has a lasting effect and that it is even amplified in the long run, while there is no change in business assets in the same time frame, is consistent with the idea that training, but not asset transfers, are more important in obtaining better labor outcomes in the long run. Hence, the design of micro entrepreneurship program should actively promote high quality training.
3. The skills developed through training are not only important for self-employment but also for wage work. High-quality training for self-employment generates general working skills that are valuable in the wage labor market.
4. A larger asset transfer substantially increased self-employment one year after the program, but three years later its impact does not seem to be different from that of the smaller transfer. At the same time, individuals with the smaller transfer were significantly more likely to be wage earners three to four years after the intervention. The interaction of the training and the asset transfer provided individuals with the skills to be employable more often, but the different asset transfers seems to have set individuals on different employment paths. As a short-term employment-generating strategy, it seems that the larger the transfer the better. Nevertheless, in the long run the larger transfer does not seem to produce a gain, although total earnings could have been larger.

In terms of future research, our study shows that it is important to study the quality of the training, long-run impacts and effects on wage employment. We cannot distinguish which part of micro entrepreneurship training contributes the most to improve general working skills. This should be the focus of future research into programs that provide training for micro entrepreneurship. Understanding the role of general and specific skills in long-run labor outcomes is crucial in improving the design and effectiveness of this type of program. At the same time, the evidence suggest that these programs are not very effective for individuals who are self-employed at the baseline and more research is needed to find effective interventions for this group.

## Appendix A: Sample design

The sample considered for this study corresponded to extremely poor households of the Santiago metropolitan region, specifically those with individuals over 18 years old who benefited from social programs and were unemployed or underemployed.<sup>31</sup> This is the population that the program targeted. In particular, the study sample only considered participants in Chile Solidario, the main anti-poverty program of the Chilean government, which applied for the MESP in 2010 in the Santiago metropolitan region.

The size of the randomized sample was 1,948 households, which were classified into three treatment arms (control group, MESP and MESP+). Stratification was carried out considering the residence municipality and the quartile of the SSC score.<sup>32</sup>

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<sup>31</sup> Underemployment is loosely defined by the government implementing agency FOSIS. In general, it involves occupations with low income and few working hours.

<sup>32</sup> The four quartiles used for stratification were built using three SSC score cuts: 2,168, 2,298.5 and 3,445 points.

## Appendix B: Survey instruments

The study implemented a baseline survey in 2010, to obtain a socio-economic characterization of the population subject to evaluation. The instrument included modules such as household characterization, education, income, risk aversion and household assets.<sup>33</sup>

### Baseline questionnaire (2010)

**Encuesta**  
**Programa de Apoyo al**  
**MICROEMPREDIMIENTO**  
**2010**



COMUNA:

FOLIO:  -

Fecha Entrevista	Hora Inicio Entrevista	Hora Término Entrevista
<input type="text"/> Día <input type="text"/> Mes <input type="text"/> 2010	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>

**DATOS DEL ENTREVISTADO**

Nombre Entrevistado(a):	Apellido Paterno:	Apellido Materno:	
Dirección:	Teléfono Fijo <small>(código de área - fono)</small>		Celular
Villa / Población:	Localidad:	Comuna:	Región:

Fecha 1ª visita:	Resultado 1ª visita:	Fecha 2ª visita:	Resultado 2ª visita:	Fecha 3ª visita:	Resultado 3ª visita:
/ / 2010		/ / 2010		/ / 2010	

**Reservado Supervisión**  
(En cada etapa se debe registrar el nombre del responsable)

	1. Sí	2. No	Códigos
Encuesta completa			Nombre Encuestador(a)
Flujo lógico			Nombre Supervisor(a)
Letra legible			Nombre Codificador(a)
Entrevistado idóneo			Nombre Digitador(a)

<sup>33</sup> Access to full baseline questionnaire is provided at the following link:  
<https://www.dropbox.com/s/oihn8qvfe6pfmp4/20100728percent20Cuestionariopercent20PAMEperc ent20LBpercent20-percent20Completo.pdf>

The first follow-up survey was conducted in 2011. Since the program was implemented the instrument has been expanded to include questions aimed at measuring business performance (in terms of sales, expenses and profits) and the implementation of sound business practices (marketing efforts, record keeping, etc.)<sup>34</sup>

### Follow-up questionnaire 1 (2011)

**Encuesta**  
**Programa de Apoyo al**  
**MICROEMPRESARIADO**  
**2 0 1 1**



COMUNA:

FOLIO:  -

Fecha Entrevista  

2011

Hora Inicio Entrevista  

:

Hora Término Entrevista  

:

**DATOS DEL ENTREVISTADO**

Nombre Entrevistado(a):	Apellido Paterno:	Apellido Materno:	
Dirección:		Teléfono Fijo: <small>(código de área - fono)</small>	Celular:
Villa / Población:	Localidad:	Comuna:	Región:

Fecha 1ª visita:	Resultado 1ª visita:	Fecha 2ª visita:	Resultado 2ª visita:	Fecha 3ª visita:	Resultado 3ª visita:
/ / 2011		/ / 2011		/ / 2011	
Fecha 4ª visita:	Resultado 4ª visita:	Fecha 5ª visita:	Resultado 5ª visita:		
/ / 2011		/ / 2011			

**Reservado Supervisión**  
(En cada etapa se debe registrar el nombre del responsable)

	1. Sí	2. No		Códigos
Encuesta completa			Nombre Encuestador(a):	
Flujo lógico			Nombre Supervisor(a):	
Letra legible			Nombre Codificador(a):	
Entrevistado idóneo			Nombre Digitador(a):	

To capture medium- and long-term effects of the program, a second follow-up survey was conducted in 2013. The instrument was reduced and focused on the key variables of the study. Additionally, questions regarding seasonal operation and performance of businesses were included.

<sup>34</sup> Access to full follow-up questionnaire 1 is provided at the following link:  
[https://www.dropbox.com/s/q09s69c2pxeqkw4/Cuestionario\\_Final\\_140911.pdf](https://www.dropbox.com/s/q09s69c2pxeqkw4/Cuestionario_Final_140911.pdf)

## Follow-up questionnaire 2 (2013)




**ENCUESTA**  
**→ PROGRAMA DE APOYO AL MICROEMPENDIMIENTO**  
**2013**

COMUNA:  FOLIO:

FECHA ENTREVISTA:  /  / 2013 HORA INICIO:  :  HORA TERMINO:  :

**→ DATOS DEL ENTREVISTADO:**

Nombre de Entrevistado (a):  Apellido Paterno:  Apellido Materno:

Dirección:  Teléfono Fijo: (Cod. de Área-Fono)  Celular:

Villa/Población:  Localidad:  Comuna:  Región:

Fecha 1ª visita:	Resultados 1ª visita	Fecha 2ª visita:	Resultados 2ª visita	Fecha 3ª visita:	Resultados 3ª visita
___ / ___ / 2013		___ / ___ / 2013		___ / ___ / 2013	
	Fecha 4ª visita:	Resultados 4ª visita	Fecha 5ª visita:	Resultados 5ª visita	
	___ / ___ / 2013		___ / ___ / 2013		

**RESERVADO SUPERVISIÓN** (En cada etapa se debe registrar el nombre del responsable)

NOMBRE ENCUESTADOR(A):			COD.
	Sí	No	Códigos
Encuesta validada	<input type="radio"/>	<input type="radio"/>	Nombre Validador(a):
Encuesta supervisada	<input type="radio"/>	<input type="radio"/>	Nombre Supervisor(a):
Encuesta codificada	<input type="radio"/>	<input type="radio"/>	Nombre Codificador(a):
Encuesta digitada	<input type="radio"/>	<input type="radio"/>	Nombre Digitador(a):
Fotografía	<input type="radio"/>	<input type="radio"/>	Nº:
Cámara Nº:			Nº:



## **Appendix C: Power calculations**

- Randomization was performed at the individual level.
- The minimum detectable effect was 0.2 standard deviations of the dependent variable.
- The power considered for the test was 0.8.
- The significance level for the test was 5 per cent.
- The assumed intra-cluster correlation was 0.1. This was a conservative assumption, because the randomization was performed at the individual level and this assumption was aimed at controlling a potential formation of clusters within the treated sample during implementation.
- Assumed attrition between baseline and follow-up is 10 per cent (actual attrition was 12.1%).
- Regarding the treated control problem, according to FOSIS statistics, the likelihood of having individuals from the control group receiving the MESP within the evaluation time span is 2 per cent.

## Appendix D: Descriptive statistics

**Table D1: Variable means and difference – test between treatment groups (2011 and 2013 samples)**

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
Variables	N obs	Control	T	T1	T2	p-val MESP= C	p-val T1=C	p-val T1=T2	p-val T2=C
<i>Survey data</i>									
Gender (1=Male)	1,356	0.05	0.07	0.06	0.07	0.18	0.40	0.47	0.13
Age	1,356	36.04	36.19	36.13	36.25	0.82	0.91	0.87	0.79
Primary education	1,354	0.31	0.33	0.33	0.32	0.67	0.63	0.82	0.79
Secondary education incomplete	1,354	0.23	0.25	0.24	0.26	0.47	0.74	0.54	0.36
Secondary education complete	1,354	0.41	0.37	0.36	0.37	0.12	0.15	0.86	0.19
Tertiary education	1,354	0.04	0.06	0.07	0.05	0.26	0.13	0.29	0.59
SSC score	1,356	3,447	3,472	3,451	3,491	0.85	0.98	0.79	0.77
Employed	1,348	0.66	0.64	0.65	0.63	0.60	0.89	0.53	0.46
Self-employed	1,348	0.50	0.50	0.50	0.49	0.78	0.93	0.73	0.68
Labor income (US\$)	1,348	106.23	107.29	96.96	116.63	0.90	0.30	0.02	0.29
Wage work income	1,350	38.79	37.04	36.41	37.62	0.76	0.72	0.84	0.86
Self-employment income	1,354	66.81	69.99	60.16	78.94	0.65	0.37	0.01	0.15
<i>Unemployment insurance data</i>									
N of months with formal employment in 2009	1,356	1.19	1.36	1.31	1.40	0.38	0.59	0.64	0.31
Average formal earnings in 2009	1,356	44.90	44.82	45.14	44.54	0.99	0.98	0.94	0.97

Note: Data from baseline survey conducted by the authors in September–October 2010. Sample size varies due to missing values. Income variable is measured in real US dollars (using exchange rate as of November 2009). Column [1] shows the number of observation. Columns [2], [3], and [4] show the mean value of the variable for the control group, T1, and T2 respectively. Column [5] reports the p-value of the null hypothesis that T1=Control Group, column [6] reports the p-value of the null hypothesis that T1=T2. Column [3] shows the p-value of the null hypothesis that T2=Control Group. Formal employment and earnings are from the UI data.

**Table D2: Treatment groups and attrition**

Panel A: Number of observations		Randomized	Baseline	Follow-up 1	Follow-up 2	All rounds
		[1]	[2]	[3]	[4]	[5]
Control group	Pure control group	566	532	490	432	385
T	T1 + T2	1382	1307	1222	1071	971
T1	MESP	689	649	593	513	462
T2	MESP+	693	658	629	558	509
Total		1,948	1,839	1,712	1,503	1,356

Panel B: Response rates with respect to baseline		Follow-up 1	Follow-up 2	All rounds
		[3]	[4]	[5]
Control group	Pure control group	92.1%	81.2%	72.4%
T	T1 + T2	93.5%	81.9%	74.3%
T1	MESP	91.4%	79.0%	71.2%
T2	MESP+	95.6%	84.8%	77.4%

#### Panel C: Attrition

p-value of the differences in follow-up response rates

All rounds	
T vs C	0.40
T1 vs. C	0.65
T1 vs. T2	0.01
T2 vs. C	0.05

#### Panel D: Observables and attrition

p-value of the interaction of treatment and observables explain attrition

T1	0.58
T2	0.77

Note: T pools individuals in T1 and T2

## Appendix E: Results tables

Balancing tests are in the previous section.

For the results presented below, the basic estimated econometric model is specified as follows:

$$Y_i = \beta_0 + \beta_1 T_i + e_i$$

Where  $Y_i$  is an outcome variable (such as employment, income, or hours of work),  $T_i$  is a dummy indicator of treatment status (MESP or MESP+), as explained previously. We also estimate effects for each treatment arm separately by using the following specification:

$$Y_i = \beta_0 + \beta_1 T1_i + \beta_2 T2_i + e_i$$

Where  $Y_i$  is an outcome variable, as described above, and  $T1_i$  and  $T2_i$  are dummy indicators of the treatment status as explained previously. Fixed effects for strata are also included in each regression specification. Errors are clustered at the municipality level. Further specifications include the outcome variable at baseline as an independent variable (wherever possible).

The following tables present results for the first specification for 2011 and 2013.

**Table E1: ITT effects on main labor market outcomes**

	[1] 2011	[2] 2013
<i>Panel A: Employment</i>		
Self-employment	0.227*** (0.024)	0.057** (0.023)
Dep. var. control mean	0.424	0.415
Wage employment	-0.05** (0.021)	0.048** (0.021)
Dep. var. control mean	0.276	0.331
Total employment	0.153*** (0.019)	0.068*** (0.022)
Dep. var. control mean	0.653	0.698
Sample size	1,325	1,347
<i>Panel B: Income and hours worked</i>		
Self-employment income	58*** (9.18)	14 (8.62)
Dep. var. control mean	64	87
Wage employment income	10 (9.35)	20** (7.72)
Dep. var. control mean	68	111
Total labor income	70*** (13.93)	34*** (9.98)
Dep. var. control mean	133	199
Weekly hours worked	6.0 (0.8)	3.6 (1.1)
Dep. var. control mean	19.9	24.1
Sample size	1,325	1,347

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard deviations in parentheses. All income variables are measured in real US dollars (using exchange rate as of November 2009). Regressions include dummies for strata (defined by a socioeconomic index computed by the government using the SSC score and municipality of residence). Standard errors are calculated allowing for clustering at the municipality level. Regressions are weighted following Humphreys (2009). Sample size varies due to missing values.

**Table E2: Mechanisms**

	2011		2013	
	[1]	[2]	[3]	[4]
	Control	MESP and MESP+	Control	MESP and MESP+
<i>Panel A: Business practices</i>				
Marketing (min. 0–max. 9)	1.1	1.7*** (0.1)	1.7	0.4*** (0.11)
Inventory management (min. 0–max. 5)	0.5	0.9*** (0.05)	0.7	0.2*** (0.05)
Costing and record keeping (min. 0–max. 7)	1.0	1.8*** (0.11)	1.4	0.4*** (0.1)
Financial planning (min. 0–max. 4)	0.5	0.8*** (0.06)	0.7	0.2*** (0.05)
Business practices (min. 0–max. 25)	3.1	5.3*** (0.31)	4.4	1.2*** (0.29)
Available cash (US\$)	14	44*** (6.8)	36	18*** (6.38)
Inventory available (min. 0–max. 1)	0.023	0.037*** (0.01)	0.044	0.018* (0.01)
Registry book available (min. 0–max. 1)	0.024	0.036*** (0.01)	0.062	0.022** (0.01)
<i>Panel B: Assets</i>				
Total assets (business + household, US\$)			-107	-39 (151.64)

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard deviations in parentheses. Asset variables are measured in real US dollars (using exchange rate as of November 2009). Regressions include dummies for strata (defined by a socioeconomic index computed by the government using the SSC score and municipality of residence). Standard errors are calculated allowing for clustering at the municipality level. Regressions are weighted following Humphreys (2009). Sample size varies due to missing values. Business practices are described in Appendix 1. No data on assets were collected in 2011.

Additionally, we study the existence of heterogeneous treatment effects with the following equation:

$$Y_i = \alpha_0 + \alpha_1^k T_i D_i^k + \alpha_2 T_i + \alpha_3^k D_i^k + v_i$$

Where  $T_i$  is a dummy variable indicating exposure to MESP or MESP+, and  $D_i^k$  is the variable where the interaction effect is studied. Therefore, the parameter of interest is  $\alpha_1^k$ , since it represents the treatment effect for the particular subgroup studied. For the following estimations presented, the variables for which the interactive effect was estimated were graduation rate and quality index, which are explained in a note below the table.

**Table E3a: Heterogeneous treatment effects (2011)**

	Self-employment		Wage employment		Total employment	
	[1]	[2]	[3]	[4]	[5]	[6]
MESP	0.108 (0.202)	-0.139 (0.357)	-0.222* (0.122)	-0.101 (0.292)	-0.004 (0.163)	-0.219 (0.284)
<i>Interaction of treatment with programs:</i>						
Graduation rate	0.002 (0.002)		0.002 (0.002)		0.002 (0.002)	
Quality index		0.039 (0.038)		0.006 (0.033)		0.04 (0.03)
Number of observations	1,325	1,325	1,325	1,325	1,325	1,325
	Self-employment income		Wage employment income		Total labor income	
	[1]	[2]	[3]	[4]	[5]	[6]
MESP	54 (77.87)	-252* (146.12)	23 (83.15)	-95 (103.29)	86 (135.39)	-400** (153.87)
<i>Interaction of treatment with programs:</i>						
Graduation rate	0.059 (0.97)		-0.161 (1.01)		-0.196 (1.63)	
Quality index		33** (15.72)		11 (11.55)		51*** (16.72)
Number of observations	1,332	1,332	1,345	1,345	1,325	1,325

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard deviations in parentheses. All income variables are measured in real US dollars (using exchange rate as of November 2009). Regressions include dummies for strata (defined by a socioeconomic index computed by the government using the SSC score and municipality of residence). Standard errors are calculated allowing for clustering at the municipality level. Regressions are weighted following Humphreys (2009). Sample size varies due to missing values. Quality index corresponds to a standardized evaluation performed by FOSIS on all training companies. We impute quality indicators to the control group averaging the quality indicators of the individuals selected for T who live in the same municipality.

**Table E3b: Heterogeneous treatment effects (2013)**

	Self-employment		Wage employment		Total employment	
	[1]	[2]	[3]	[4]	[5]	[6]
MESP	-0.014 (0.173)	-0.306 (0.307)	-0.378** (0.143)	-0.728* (0.383)	-0.362** (0.148)	- 0.695** (0.348)
<i>Interaction of treatment with programs:</i>						
Graduation rate	0.001 (0.002)		0.005*** (0.002)		0.006*** (0.002)	
Quality index		0.039 (0.033)		0.083** (0.041)		0.082** (0.038)
Number of observations	1,347	1,347	1,347	1,347	1,347	1,347
	Self-employment income		Wage employment income		Total labor income	
	[1]	[2]	[3]	[4]	[5]	[6]
MESP	-60 (55.26)	-183 (111.74)	-111** (50.53)	-213* (120.32)	-166*** (57.99)	-409*** (143.17)
<i>Interaction of treatment with programs:</i>						
Graduation rate	0.942 (0.65)		1.682** (0.65)		2.566*** (0.73)	
Quality index		21* (11.63)		25* (13.17)		48*** (15.21)
Number of observations	1,353	1,353	1,350	1,350	1,347	1,347

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard deviations in parentheses. All income variables are measured in real US dollars (using exchange rate as of November 2009). Regressions include dummies for strata (defined by a socioeconomic index computed by the government using the SSC score and municipality of residence). Standard errors are calculated allowing for clustering at the municipality level. Regressions are weighted following Humphreys (2009). Sample size varies due to missing values. Quality index corresponds to a standardized evaluation performed by FOSIS to all training companies. We impute quality indicators to the control group averaging the quality indicators of the individuals selected for T who live in the same municipality.



**Table E4: Employment effects of treatments arms**

	[1] 2011 Contr ol	[2] MESP	[3] MESP+	[4] p-value	[5] 2013 Control	[6] MESP	[7] MESP+	[8] p-value
<i>Panel A: Levels</i>								
Self-employment	0.424	0.178*** (0.032)	0.278*** (0.03)	0.00	0.415	0.037 (0.028)	0.079** *	0.14
Wage employment	0.276	-0.035 (0.026)	-0.062** (0.025)	0.30	0.331	0.095*** (0.024)	0.005 (0.028)	0.00
Total employment	0.653	0.115*** (0.026)	0.193*** (0.023)	0.00	0.698	0.084*** (0.024)	0.062** (0.025)	0.25
<i>Panel B: Lower bound</i>								
Self-employment	0.424	0.178*** (0.032)	0.262*** (0.031)	0.02	0.415	0.037 (0.028)	0.034 (0.027)	0.92
Wage employment	0.276	-0.036 (0.026)	-0.126*** (0.025)	0.00	0.331	0.093*** (0.024)	-0.042 (0.027)	0.00
Total employment	0.653	0.113*** (0.026)	0.173*** (0.024)	0.03	0.698	0.081*** (0.024)	0.042 (0.026)	0.06
<i>Panel C: Upper bound</i>								
Self-employment	0.424	0.175*** (0.031)	0.332*** (0.03)	0.00	0.415	0.035 (0.029)	0.116** *	0.01
Wage employment	0.276	-0.033 (0.027)	-0.048* (0.026)	0.59	0.331	0.096*** (0.024)	0.018 (0.028)	0.01
Total employment	0.653	0.116*** (0.026)	0.2*** (0.024)	0.00	0.698	0.084*** (0.024)	0.08*** (0.025)	0.82

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard deviations in parentheses. Regressions are weighted following Humphreys (2009). Sample size varies due to missing values. Following Lee (2009), we trim the distribution of each independent variable of the MESP+ group by the difference in attrition rates between the MESP+ and MESP and control group as a proportion of the retention rate of the additional funding group. Given that the variables are discrete we randomly trim variables y=1 for the lower bound and variables y=0 for the upper bound. Standard errors are calculated allowing for clustering at the municipality level.

**Table E5: ITT on formal employment and earnings (data from UI)**

	[1]	[2]		[3]	[4]	[5]	[6]
<i>Month</i>	Employment effect	p-value		Over CG	Earnings effect	p-value	Over CG
Sep-10	-0.034	0.012	**	-0.270	-6.674	0.277	-0.118
Oct-10	-0.056	0.001	***	-0.363	-20.328	0.004	***
Nov-10	-0.051	0.007	***	-0.335	-13.092	0.095	*
Dec-10	-0.035	0.061	*	-0.227	-6.912	0.444	-0.104
Jan-11	-0.038	0.051	*	-0.260	-10.136	0.256	-0.154
Feb-11	-0.030	0.175		-0.195	-5.490	0.520	-0.083
Mar-11	-0.039	0.066	*	-0.231	-13.110	0.156	-0.177
Apr-11	-0.037	0.034	**	-0.204	-10.125	0.226	-0.132
May-11	-0.038	0.026	**	-0.230	-9.573	0.305	-0.133
Jun-11	-0.020	0.221		-0.130	-6.752	0.482	-0.098
Jul-11	-0.024	0.187		-0.149	-2.396	0.819	-0.033
Aug-11	-0.018	0.312		-0.111	-3.151	0.766	-0.042
Sep-11	-0.018	0.247		-0.112	-3.128	0.716	-0.040
Oct-11	-0.020	0.238		-0.120	-0.439	0.961	-0.006
Nov-11	-0.019	0.286		-0.106	-0.020	0.998	0.000
Dec-11	-0.030	0.096	*	-0.158	-9.601	0.342	-0.102
Jan-12	-0.017	0.427		-0.093	-2.021	0.850	-0.024
Feb-12	-0.020	0.370		-0.112	-8.767	0.458	-0.097
Mar-12	-0.020	0.325		-0.108	-3.928	0.683	-0.043
Apr-12	-0.033	0.042	**	-0.166	-5.553	0.604	-0.058
May-12	-0.005	0.765		-0.027	-3.400	0.777	-0.034
Jun-12	-0.018	0.360		-0.096	6.581	0.543	0.073
Jul-12	-0.028	0.082	*	-0.138	-13.251	0.202	-0.125
Aug-12	-0.024	0.154		-0.117	-16.305	0.221	-0.146
Sep-12	-0.021	0.213		-0.101	0.975	0.933	0.009
Oct-12	-0.014	0.439		-0.066	-9.932	0.492	-0.089
Nov-12	-0.010	0.552		-0.048	-3.414	0.765	-0.032
Dec-12	-0.007	0.662		-0.036	-7.801	0.594	-0.064
Jan-13	0.004	0.811		0.019	-3.620	0.809	-0.032
Feb-13	0.000	0.993		-0.001	4.977	0.643	0.047
Mar-13	0.028	0.047	**	0.152	17.023	0.097	*
Apr-13	0.010	0.428		0.049	6.782	0.576	0.057
May-13	0.026	0.119		0.134	25.865	0.043	**
Jun-13	0.026	0.070	*	0.128	23.678	0.048	**
Jul-13	0.014	0.371		0.069	21.961	0.084	*
Aug-13	0.019	0.208		0.088	25.369	0.056	*
Sep-13	0.022	0.220		0.108	24.447	0.077	*
Oct-13	0.029	0.108		0.143	27.381	0.071	*
Nov-13	0.035	0.077	*	0.171	25.110	0.070	*
Dec-13	0.009	0.687		0.039	17.413	0.309	0.125
Jan-14	0.019	0.344		0.083	21.916	0.120	0.170
Feb-14	0.048	0.014	**	0.241	26.649	0.070	*
Mar-14	0.034	0.069	*	0.161	29.114	0.058	*
Apr-14	0.027	0.166		0.124	13.607	0.388	0.104
May-14	0.015	0.386		0.067	5.006	0.686	0.037
Jun-14	0.010	0.557		0.045	8.606	0.464	0.068

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Administrative data from UI. All income variables are measured in real US dollars (using exchange rate as of November 2009). Regressions include dummies for strata (defined by a socioeconomic index computed by the government using the SSC score and municipality of residence). Standard errors are calculated allowing for clustering at the municipality level. Regressions are weighted following Humphreys (2009). Sample size is 1,356. Over CG measures the change relative to the level of the variable in the control group.

**Table E6: Heterogeneous treatment effects***Panel A: 2011*

	Self-employment [1]	Wage employment [2]	Total employment [3]	Self-employment income [4]	Wage employment income [5]	Total labor income [6]
MESP	0.331*** (0.047)	-0.011 (0.034)	0.303*** (0.049)	58.7*** (9.95)	10.5 (15.13)	68.7*** (18.34)
<i>Interaction of treatment with:</i>						
Self-employed in baseline	-0.132** (0.053)	-0.063 (0.046)	-0.197*** (0.05)	10.1 (19.63)	-5.5 (17.22)	6.7 (24.45)
Wage employed in baseline	-0.210*** (0.072)	-0.04 (0.068)	-0.286*** (0.051)	-27.3 (22.36)	12.9 (20.51)	-10 (27.93)
Number of observations	1,325	1,325	1,325	1,326	1,343	1,325

*Panel B: 2013*

	Self-employment [1]	Wage employment [2]	Total employment [3]	Self-employment income [4]	Wage employment income [5]	Total labor income [6]
MESP	0.073 (0.055)	0.098** (0.043)	0.114** (0.051)	3.8 (12.97)	50.7*** (15.02)	53.2*** (17.18)
<i>Interaction of treatment with:</i>						
Self-employed in baseline and MESP	-0.013 (0.076)	-0.091* (0.048)	-0.076 (0.06)	22.3 (24.02)	-43** (19.05)	-18.1 (23.96)
Wage earner in baseline and MESP	-0.072 (0.067)	-0.037 (0.081)	-0.06 (0.073)	-9.7 (26.08)	-56 (35.55)	-61.9 (38.57)
Number of observations	1,347	1,347	1,347	1,347	1,348	1,347

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard deviations in parentheses. All income variables are measured in real US dollars (using exchange rate as of November 2009). Regressions include dummies for strata (defined by a socioeconomic index computed by the government using the Social Security Card score and municipality of residence). Standard errors are calculated allowing for clustering at the municipality level. Regressions are weighted following Humphreys (2009). Sample size varies due to missing values.

**Table E7: Upper and lower bounds of employment effect for MESP (T1) and MESP+ (T2)**

<i>Month</i>	[1] T1 upper bound	[2] p- value	[3] T1 lower bound	[4] p- value	[5] T2 upper bound	[6] p-value	[7] T2 lower bound	[8] p-value
Sep-10	-0.028	0.058 *	-0.027	0.076 *	-0.033	0.065 *	-0.096	0.000 ***
Oct-10	-0.044	0.019 **	-0.043	0.026 **	-0.060	0.002 ***	-0.118	0.000 ***
Nov-10	-0.042	0.054 *	-0.040	0.061 *	-0.057	0.018 **	-0.118	0.000 ***
Dec-10	-0.040	0.052 *	-0.036	0.078 *	-0.026	0.232	-0.088	0.000 ***
Jan-11	-0.025	0.282	-0.022	0.358	-0.046	0.039 **	-0.105	0.000 ***
Feb-11	-0.024	0.344	-0.022	0.401	-0.027	0.266	-0.088	0.000 ***
Mar-11	-0.027	0.244	-0.027	0.237	-0.036	0.150	-0.102	0.000 ***
Apr-11	-0.033	0.119	-0.033	0.094 *	-0.027	0.253	-0.095	0.000 ***
May-11	-0.023	0.247	-0.020	0.297	-0.041	0.047 **	-0.113	0.000 ***
Jun-11	-0.001	0.979	0.003	0.868	-0.030	0.127	-0.094	0.000 ***
Jul-11	-0.001	0.954	-0.001	0.980	-0.035	0.104	-0.100	0.000 ***
Aug-11	-0.003	0.892	-0.002	0.933	-0.023	0.325	-0.100	0.000 ***
Sep-11	-0.002	0.927	0.000	0.995	-0.023	0.261	-0.091	0.000 ***
Oct-11	0.001	0.976	0.002	0.922	-0.023	0.308	-0.096	0.000 ***
Nov-11	-0.003	0.888	-0.003	0.906	-0.018	0.437	-0.095	0.000 ***
Dec-11	-0.016	0.507	-0.018	0.429	-0.020	0.460	-0.097	0.000 ***
Jan-12	-0.001	0.974	-0.002	0.936	-0.017	0.527	-0.088	0.001 ***
Feb-12	-0.005	0.872	-0.005	0.862	-0.017	0.544	-0.094	0.000 ***
Mar-12	-0.013	0.591	-0.010	0.680	-0.021	0.438	-0.094	0.000 ***
Apr-12	-0.021	0.340	-0.019	0.385	-0.028	0.187	-0.105	0.000 ***
May-12	0.014	0.514	0.017	0.419	-0.003	0.895	-0.078	0.000 ***
Jun-12	0.012	0.628	0.012	0.619	-0.031	0.218	-0.106	0.000 ***
Jul-12	0.011	0.617	0.010	0.658	-0.044	0.026 **	-0.121	0.000 ***
Aug-12	0.007	0.756	0.008	0.717	-0.032	0.130	-0.113	0.000 ***
Sep-12	0.006	0.791	0.007	0.762	-0.025	0.233	-0.104	0.000 ***
Oct-12	0.003	0.887	0.007	0.777	-0.012	0.573	-0.085	0.000 ***
Nov-12	0.019	0.412	0.020	0.358	-0.026	0.211	-0.106	0.000 ***
Dec-12	0.015	0.488	0.017	0.447	-0.009	0.653	-0.088	0.000 ***
Jan-13	0.029	0.178	0.033	0.128	0.000	0.988	-0.080	0.000 ***
Feb-13	0.017	0.389	0.021	0.276	0.001	0.948	-0.073	0.000 ***
Mar-13	0.063	0.002 ***	0.065	0.001 ***	0.023	0.241	-0.054	0.001 ***
Apr-13	0.031	0.100	0.033	0.067 *	0.009	0.615	-0.072	0.000 ***
May-13	0.051	0.016 **	0.053	0.011 **	0.038	0.091 *	-0.049	0.020 **
Jun-13	0.053	0.009 ***	0.054	0.005 ***	0.027	0.208	-0.054	0.010 **
Jul-13	0.033	0.085 *	0.035	0.062 *	0.019	0.385	-0.058	0.014 **
Aug-13	0.044	0.013 **	0.044	0.013 **	0.013	0.575	-0.066	0.003 ***
Sep-13	0.044	0.047 **	0.044	0.044 **	0.023	0.391	-0.059	0.017 **
Oct-13	0.044	0.037 **	0.043	0.047 **	0.037	0.133	-0.044	0.077 *
Nov-13	0.059	0.014 **	0.057	0.015 **	0.039	0.111	-0.037	0.118
Dec-13	0.034	0.201	0.036	0.170	0.006	0.817	-0.075	0.006 ***
Jan-14	0.038	0.145	0.043	0.099 *	0.029	0.291	-0.053	0.041 **
Feb-14	0.065	0.017 **	0.069	0.007 ***	0.058	0.041 **	-0.016	0.465
Mar-14	0.051	0.048 **	0.053	0.042 **	0.040	0.114	-0.028	0.261
Apr-14	0.055	0.037 **	0.051	0.052 *	0.032	0.189	-0.042	0.089 *
May-14	0.046	0.062 *	0.049	0.045 **	0.010	0.645	-0.065	0.002 ***
Jun-14	0.026	0.243	0.027	0.245	0.025	0.245	-0.052	0.012 **

Note: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Administrative data from UI. Following Lee (2009), we trim the distribution of each independent variable of the MESP+ group by the difference in attrition rates between the MESP+ and MESP and control group as a proportion of the retention rate of the additional funding group. Given that the variables are discrete we randomly trim variables  $y=1$  for the lower bound and variables  $y=0$  for the upper bound. Regressions include dummies for strata (defined by a socioeconomic index computed by the government using the SSC score and municipality of residence). Standard errors are calculated allowing for clustering at the municipality level. Regressions are weighted following Humphreys (2009). Sample size is 1,356.

**Table E8: Upper and lower bounds of earnings effect for MESP (T1) and MESP+ (T2)**

<i>Month</i>	[1] T1 upper bound	[2] p- value		[3] T1 lower bound	[4] p- value		[5] T2 upper bound	[6] p- value		[7] T2 lower bound	[8] p- value	
Sep-10	-3.586	0.645		-2.437	0.754		-10.062	0.315		-40.434	0.000	***
Oct-10	-18.007	0.028	**	-17.191	0.039	**	-23.365	0.010	**	-50.929	0.000	***
Nov-10	-10.339	0.246		-9.507	0.286		-15.067	0.150		-47.130	0.000	***
Dec-10	-4.765	0.653		-4.223	0.692		-7.591	0.502		-42.925	0.000	***
Jan-11	-2.854	0.789		-1.807	0.865		-15.768	0.142		-50.617	0.000	***
Feb-11	0.755	0.945		1.416	0.896		-5.322	0.611		-42.832	0.000	***
Mar-11	-9.773	0.393		-10.405	0.358		-11.119	0.314		-50.004	0.000	***
Apr-11	-2.096	0.847		-2.456	0.811		-10.894	0.333		-48.449	0.000	***
May-11	0.616	0.957		0.917	0.932		-13.047	0.292		-54.522	0.000	***
Jun-11	7.053	0.536		6.563	0.547		-14.801	0.208		-53.160	0.000	***
Jul-11	9.162	0.453		8.526	0.467		-6.951	0.580		-51.561	0.000	***
Aug-11	9.203	0.464		8.630	0.473		-7.752	0.573		-50.510	0.000	***
Sep-11	13.774	0.210		12.743	0.228		-12.843	0.277		-52.896	0.000	***
Oct-11	13.473	0.245		12.758	0.253		-5.242	0.667		-50.158	0.000	***
Nov-11	11.459	0.309		9.773	0.353		-1.644	0.895		-50.902	0.000	***
Dec-11	4.515	0.740		3.613	0.781		-12.185	0.387		-64.248	0.000	***
Jan-12	8.419	0.543		7.396	0.561		0.274	0.985		-54.025	0.000	***
Feb-12	-0.147	0.992		-0.461	0.974		-5.186	0.745		-59.101	0.000	***
Mar-12	-1.461	0.915		-0.950	0.936		6.762	0.659		-56.090	0.000	***
Apr-12	4.639	0.742		5.386	0.699		-7.206	0.598		-59.540	0.000	***
May-12	6.076	0.673		5.559	0.692		0.897	0.954		-60.997	0.000	***
Jun-12	26.674	0.067	*	25.699	0.079	*	0.511	0.970		-56.814	0.000	***
Jul-12	2.296	0.865		1.356	0.917		-14.410	0.302		-74.322	0.000	***
Aug-12	-3.716	0.826		-4.626	0.774		-14.393	0.401		-75.807	0.000	***
Sep-12	11.506	0.479		12.195	0.438		3.970	0.795		-61.479	0.000	***
Oct-12	0.691	0.970		0.356	0.984		-6.305	0.715		-68.152	0.000	***
Nov-12	15.404	0.329		15.356	0.333		-12.214	0.355		-71.466	0.000	***
Dec-12	10.706	0.582		10.908	0.570		-14.612	0.408		-77.386	0.000	***
Jan-13	8.036	0.673		8.681	0.627		3.168	0.866		-68.855	0.000	***
Feb-13	17.261	0.274		18.760	0.211		10.938	0.449		-54.766	0.000	***
Mar-13	34.999	0.027	**	35.451	0.025	**	18.733	0.149		-46.708	0.000	***
Apr-13	26.290	0.116		25.372	0.130		8.167	0.586		-58.105	0.000	***
May-13	56.107	0.003	***	55.237	0.003	***	17.817	0.277		-41.149	0.003	***
Jun-13	43.413	0.006	***	41.818	0.006	***	21.721	0.167		-41.612	0.003	***
Jul-13	35.755	0.034	**	35.347	0.027	**	25.497	0.130		-43.249	0.004	***
Aug-13	40.436	0.020	**	39.218	0.016	**	26.654	0.145		-43.551	0.004	***
Sep-13	42.660	0.017	**	41.791	0.014	**	25.877	0.147		-50.649	0.001	***
Oct-13	40.585	0.029	**	39.184	0.024	**	31.294	0.112		-41.417	0.005	***
Nov-13	39.250	0.023	**	36.968	0.022	**	25.921	0.156		-44.961	0.001	***
Dec-13	40.586	0.060	*	37.690	0.074	*	12.690	0.516		-66.374	0.000	***
Jan-14	44.583	0.026	**	41.199	0.036	**	19.165	0.256		-49.721	0.001	***
Feb-14	41.353	0.035	**	37.961	0.050	**	28.276	0.102		-42.737	0.003	***
Mar-14	42.273	0.034	**	39.068	0.038	**	34.155	0.086	*	-44.534	0.003	***
Apr-14	27.409	0.185		24.668	0.225		17.307	0.360		-57.283	0.000	***
May-14	16.833	0.358		15.071	0.387		12.164	0.467		-65.294	0.000	***
Jun-14	26.481	0.129		24.348	0.155		8.766	0.566		-59.654	0.000	***

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Administrative data from UI. All income variables are measured in real US dollars (using exchange rate as of November 2009). Following Lee (2009), we trim the distribution of each independent variable of the MESP+ group by the difference in attrition rates between the MESP+ and MESP and control group as a proportion of the retention rate of the additional funding group. Regressions include dummies for strata (defined by a socioeconomic index computed by the government using the SSC score and municipality of residence). Standard errors are calculated allowing for clustering at the municipality level. Regressions are weighted following Humphreys (2009). Sample size is 1,356.

**Table E9: Bounds for T1 – T2 employment effect (MESP – MESP+)**

	[1]	[2]	[3]	[4]	
<i>Month</i>	T1 – T2 upper bounds	p-value	T1 – T2 lower bounds	p-value	
Sep-10	0.005	0.734	0.069	0.000	***
Oct-10	0.016	0.315	0.076	0.000	***
Nov-10	0.015	0.434	0.079	0.000	***
Dec-10	-0.014	0.262	0.051	0.000	***
Jan-11	0.021	0.171	0.084	0.000	***
Feb-11	0.003	0.877	0.066	0.000	***
Mar-11	0.009	0.634	0.075	0.000	***
Apr-11	-0.006	0.792	0.061	0.002	***
May-11	0.018	0.254	0.093	0.000	***
Jun-11	0.029	0.118	0.097	0.000	***
Jul-11	0.034	0.075	0.099	0.000	***
Aug-11	0.020	0.308	0.098	0.000	***
Sep-11	0.021	0.262	0.091	0.000	***
Oct-11	0.024	0.359	0.098	0.000	***
Nov-11	0.015	0.582	0.092	0.000	***
Dec-11	0.003	0.911	0.078	0.004	***
Jan-12	0.017	0.573	0.086	0.004	***
Feb-12	0.013	0.662	0.089	0.000	***
Mar-12	0.007	0.783	0.084	0.000	***
Apr-12	0.008	0.763	0.086	0.001	***
May-12	0.017	0.456	0.095	0.000	***
Jun-12	0.042	0.066	0.118	0.000	***
Jul-12	0.055	0.009	0.131	0.000	***
Aug-12	0.039	0.087	0.121	0.000	***
Sep-12	0.031	0.214	0.110	0.000	***
Oct-12	0.016	0.517	0.091	0.000	***
Nov-12	0.045	0.101	0.127	0.000	***
Dec-12	0.024	0.291	0.105	0.000	***
Jan-13	0.029	0.214	0.113	0.000	***
Feb-13	0.016	0.499	0.094	0.000	***
Mar-13	0.040	0.086	0.118	0.000	***
Apr-13	0.022	0.382	0.105	0.000	***
May-13	0.014	0.581	0.102	0.000	***
Jun-13	0.025	0.359	0.108	0.000	***
Jul-13	0.014	0.525	0.093	0.000	***
Aug-13	0.031	0.186	0.110	0.000	***
Sep-13	0.022	0.399	0.103	0.000	***
Oct-13	0.008	0.726	0.088	0.001	***
Nov-13	0.020	0.336	0.094	0.000	***
Dec-13	0.028	0.186	0.111	0.000	***
Jan-14	0.009	0.733	0.096	0.001	***
Feb-14	0.007	0.824	0.085	0.002	***
Mar-14	0.011	0.697	0.082	0.012	**
Apr-14	0.023	0.404	0.093	0.001	***
May-14	0.036	0.136	0.114	0.000	***
Jun-14	0.002	0.932	0.079	0.000	***

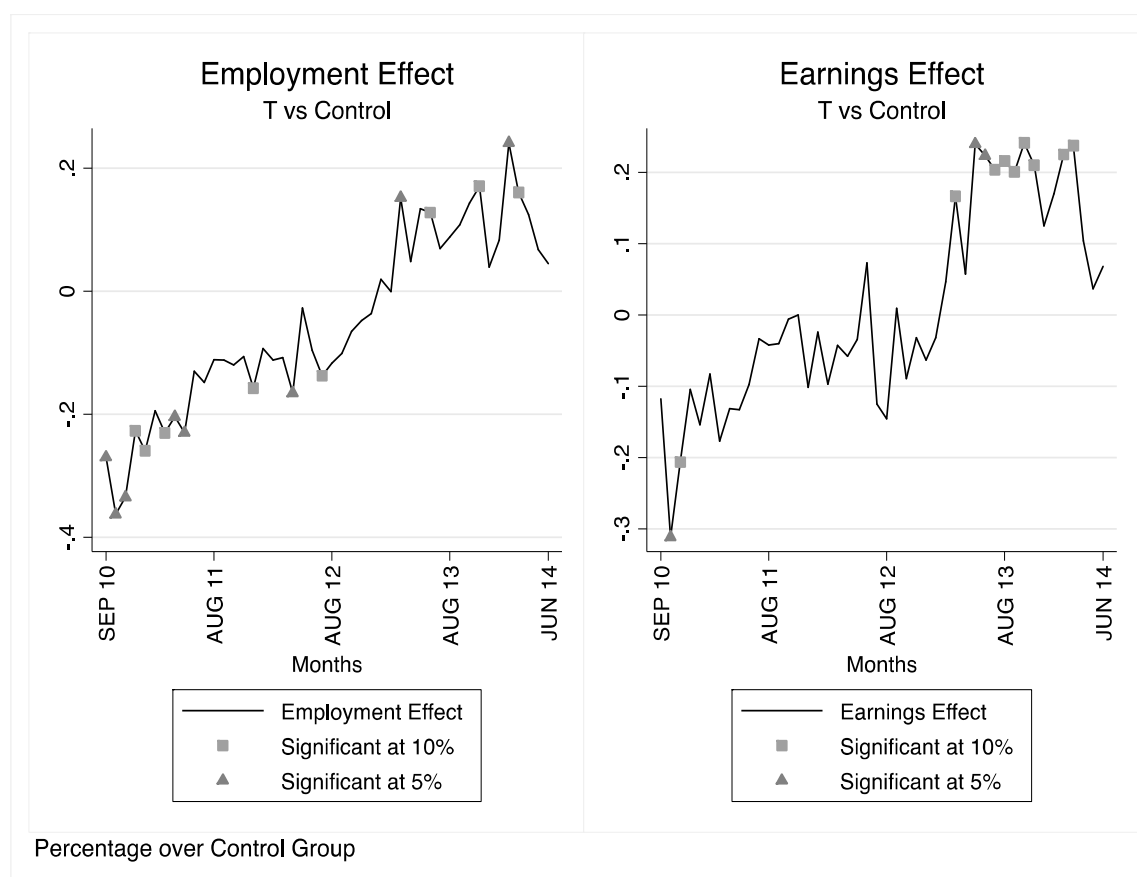
Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Administrative data from UI. Following Lee (2009), we trim the distribution of each independent variable of the MESP+ group by the difference in attrition rates between the MESP+ and MESP and control group as a proportion of the retention rate of the additional funding group. Given that the variables are discrete we randomly trim variables y=1 for the lower bound and variables y=0 for the upper bound. Regressions include dummies for strata (defined by a socioeconomic index computed by the government using the SSC score and municipality of residence). Standard errors are calculated allowing for clustering at the municipality level. Regressions are weighted following Humphreys (2009). Sample size is 1,356.

**Table E10: Bounds for T1 – T2 earnings effect (MESP – MESP+)**

	[1]	[2]	[3]	[4]	
<i>Month</i>	T1–T2 upper bounds	p-value	T1–T2 lower bounds	p-value	
Sep-10	6.476	0.540	37.996	0.000	***
Oct-10	5.359	0.467	33.738	0.000	***
Nov-10	4.729	0.598	37.623	0.000	***
Dec-10	2.826	0.778	38.702	0.000	***
Jan-11	12.915	0.135	48.810	0.000	***
Feb-11	6.076	0.536	44.249	0.000	***
Mar-11	1.346	0.889	39.599	0.000	***
Apr-11	8.798	0.442	45.993	0.000	***
May-11	13.662	0.176	55.440	0.000	***
Jun-11	21.854	0.015	59.723	0.000	***
Jul-11	16.112	0.081	60.088	0.000	***
Aug-11	16.955	0.092	59.140	0.000	***
Sep-11	26.618	0.029	65.638	0.000	***
Oct-11	18.715	0.149	62.916	0.000	***
Nov-11	13.103	0.382	60.675	0.000	***
Dec-11	16.700	0.336	67.861	0.000	***
Jan-12	8.145	0.644	61.421	0.000	***
Feb-12	5.038	0.787	58.640	0.000	***
Mar-12	-8.223	0.670	55.140	0.000	***
Apr-12	11.845	0.436	64.926	0.000	***
May-12	5.179	0.706	66.555	0.000	***
Jun-12	26.163	0.074	82.513	0.000	***
Jul-12	16.706	0.245	75.677	0.000	***
Aug-12	10.678	0.513	71.181	0.000	***
Sep-12	7.535	0.643	73.674	0.000	***
Oct-12	6.996	0.609	68.508	0.000	***
Nov-12	27.618	0.054	86.822	0.000	***
Dec-12	25.318	0.156	88.294	0.000	***
Jan-13	4.868	0.750	77.535	0.000	***
Feb-13	6.323	0.701	73.526	0.000	***
Mar-13	16.266	0.340	82.159	0.000	***
Apr-13	18.123	0.286	83.477	0.000	***
May-13	38.290	0.036	96.386	0.000	***
Jun-13	21.692	0.155	83.430	0.000	***
Jul-13	10.258	0.506	78.596	0.000	***
Aug-13	13.782	0.375	82.769	0.000	***
Sep-13	16.783	0.282	92.440	0.000	***
Oct-13	9.291	0.483	80.601	0.000	***
Nov-13	13.329	0.405	81.930	0.000	***
Dec-13	27.896	0.067	104.064	0.000	***
Jan-14	25.418	0.159	90.920	0.000	***
Feb-14	13.077	0.413	80.698	0.000	***
Mar-14	8.118	0.659	83.602	0.000	***
Apr-14	10.102	0.592	81.952	0.000	***
May-14	4.669	0.814	80.364	0.000	***
Jun-14	17.715	0.327	84.002	0.000	***

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Administrative data from UI. Following Lee (2009), we trim the distribution of each independent variable of the MESP+ group by the difference in attrition rates between the MESP+ and MESP and control group as a proportion of the retention rate of the additional funding group. All income variables are measured in real US dollars (using exchange rate as of November 2009). Regressions include dummies for strata (defined by a socioeconomic index computed by the government using the SSC score and municipality of residence). Standard errors are calculated allowing for clustering at the municipality level. Regressions are weighted following Humphreys (2009). Sample size is 1,356.

**Figure E1: ITT Effect on wage employment and earnings (MESP over control group)**



Note: Plot of the ITT effect on employment and earnings measured over the control group level for September 2010–June 2014. The lower (upper) bound for the MESP+ (T2) is computed by trimming the top (bottom) 4.7 per cent of the MESP+ data. The estimate for the MESP (T1) changes due to sample change. Data from the UI administrative records.



**Figure E2: ITT Bounds on wage employment and earnings for MESP+**



Note: Plot of the bounded effects of T1 (MESP) and T2 (MESP+) on wage employment and earnings, for September 2010–June 2014. The lower (upper) bound for the MESP+ (T2) is computed by trimming the top (bottom) 4.7 per cent of the MESP+ data. The estimate for the MESP (T1) changes due to sample change. Data from the UI administrative records.

**Table E11: Description of relevant variables**

Variable	Description
<b>Business practices</b>	
Marketing	<p>The marketing score ranges from 0 to 9. One point is added for each one of the following activities that the beneficiary completed within the past three months:</p> <ol style="list-style-type: none"> <li>1.- Visited at least one competitor business to note the prices competitors are charging.</li> <li>2.- Visited at least one competitor business to note the products competitors have available for sale.</li> <li>3.- Asked existing customers whether there are any other products the customers would like the business to sell or produce.</li> <li>4.- Talked to at least one former customer to find out why former customers have stopped buying from this business.</li> <li>5.- Asked a supplier which products are selling well in this business's sector.</li> <li>6.- Attracted customers with a special offer.</li> <li>7.- Advertised in any form (past 6 months).</li> </ol> <p>In addition, we have added one additional point for each yes response to the following two questions:</p> <ol style="list-style-type: none"> <li>8.- Have you used round prices such as \$1,000 instead of \$999?</li> <li>9.- Have you suggested to your clients new products that they might be interested in?</li> </ol>
Stock management	<p>The stock management score ranges from 0 to 5. One point is added for each of the following activities the beneficiary has completed in the past three months:</p> <ol style="list-style-type: none"> <li>1.- Attempted to negotiate with a supplier for a lower price on raw material.</li> <li>2.- Compared the prices or quality offered by alternative suppliers or sources of raw materials to the business's current suppliers or sources of raw material.</li> </ol> <p>In addition, one point was awarded for each affirmative answer to the following two questions:</p> <ol style="list-style-type: none"> <li>3.- Do you maintain an inventory of your business?</li> <li>4.- Do you have a record that allows you to know your inventory?</li> </ol> <p>As to the following question:</p> <ol style="list-style-type: none"> <li>5.- How often do you update the information about your inventory?</li> </ol> <ol style="list-style-type: none"> <li>a.- One point for answering daily.</li> <li>b.- Zero points for answering weekly, monthly, less than monthly, and never.</li> </ol>
Costing and record keeping	<p>The costing and record keeping score ranges from 0 to 7, and is calculated by adding one point for each of the following activities conducted by the beneficiary:</p> <ol style="list-style-type: none"> <li>1.- Records every purchase and sale made by the business.</li> <li>2.- Uses records to see how much cash the business has on hand at any point in time.</li> <li>3.- Uses records regularly to know whether sales of a particular product are increasing or decreasing.</li> <li>4.- Works out the cost to the business of each main product it sells.</li> <li>5.- Knows which goods you make the most profit per item selling.</li> <li>6.- Has a written budget, which states how much is owed each month for rent, electricity, equipment maintenance, transport, advertising, and other indirect costs to business.</li> <li>7.- Has records documenting that there is enough money each month after paying business expenses to repay a loan in the hypothetical situation that this business wants a bank loan.</li> </ol>
Financial planning	<p>The financial planning score ranges from 0 to 4 and it is calculated by awarding up to one point according to the following rules:</p> <p>The first question awards points on the basis of the scale below: 1.- How frequently do you review the financial performance of your business and analyze where there are areas for improvement?</p> <ol style="list-style-type: none"> <li>a.- Zero points for "Never", "Once a year or less" and "Two or three times a year"</li> <li>b.- One point for "Monthly or more often"</li> </ol> <p>For questions 2 and 3, add one point for affirmative answers to any of the following that the business has:</p> <ol style="list-style-type: none"> <li>2.- A target set for sales over the next year</li> <li>3.- A budget of the likely costs the business will have to face over the next year</li> </ol> <p>And adding one point for any of the following that the business has:</p> <ul style="list-style-type: none"> <li>- An annual profit and loss statement</li> <li>- An annual statement of cash flow</li> <li>- An annual balance sheet</li> <li>- An annual income/expenditure sheet.</li> </ul>

**Table E12: Quality index**

No.	Weight	Variables considered in the model	
I	6.7	Compliance with project's start date	
II	6.7	Compliance with project's end date	
III	6.7	Compliance with the delivery of compromised reports	
IV	5.0	Compliance with additional contributions	
V	5.0	Compliance with the requirement of registering beneficiaries into the National User System (NUS)	
VI	5.0	Consistency of data entry into NUS in the following fields: gender, address and birth date.	
VII	5.0	Compliance of the implementing organization with committed coverage of direct beneficiaries for the project	
VIII	5.0	Correspondence of direct beneficiaries to the project's final group of interest	
IX	5.0	Compliance of coordination activities performed by the implementing organization	
X	5.0	Performance of human resources assigned to the project (Members of the executing team)	<b>DEDICATION:</b> Team members met with dedication of time committed to the project
			<b>AVAILABILITY:</b> Team members met with the availability committed to the project
			<b>TASK COMPLIANCE:</b> Team members performed tasks or activities under their responsibility as committed in the project
			<b>QUALITY:</b> Implementation activities were performed according to the quality standards committed by the implementing organization in its proposal
XI	5.0	Quality of the products and/or services delivered to project's beneficiaries	
XII	13.3	Quality of the methodology used by the implementing organization	Methodology used was relevant to beneficiaries' reality and characteristics
			Methodology used facilitated the participation of beneficiaries
			Methodology used assured equal access to goods and services for men and women
			Methodology used effectively incorporated basic principles related to gender approach
XIII	13.3	Characteristics of infrastructure destined for the project by the implementing organization	<b>USE:</b> infrastructure committed in the proposal and/or operative agreement was used
			<b>AVAILABILITY:</b> The facilities were available during all the committed period for implementation of defined activities
			<b>QUALITY:</b> Used infrastructure met the quality standards committed in the proposal
			<b>ACCESSIBILITY:</b> Access to the facilities was easy for the beneficiaries
XIV	13.3	Support material committed by the implementing organization for beneficiaries	<b>QUANTITY:</b> Committed materials for the implementation of the project met committed quantities according to the proposal and/or operative agreement
			<b>AVAILABILITY:</b> Committed materials for the implementation of the project were timely available
			<b>QUALITY:</b> Committed materials for the implementation of the project had good quality

Each item can have several sub-items. In total there are 73 sub-items that can take a value from 1 to 10. Within each Item, the scores of the sub-items have similar weight. Then each item is weighed according to the percentage in the weight column. The evaluation index considers Items I to XIV with their respective weighting.

## **Appendix F: Study design and methods**

The RCT approach allowed controlling for sample selection bias. Given that there was imperfect compliance in the implementation of the program, not all individuals assigned to a MESP program actually received it and the effects presented in the previous section can be interpreted as ITT. In all our estimations, we followed Humphreys (2009) by including the probability of being assigned to a treatment arm in each stratum.

As previously mentioned, because attrition at the first follow-up survey was correlated to the second treatment arm (MESP+), we studied the implication of these differences to the response rate by constructing lower and upper bounds of the treatment effects, following Lee (2009). In particular, the bounds were constructed by trimming the distribution of the dependent variable where the percentage of the trimming is equal to the difference in the attrition rates between the MESP+ and the two other groups (control and MESP), divided by the response rate of the additional funding group. The results are presented in table E4.

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