Are micro-entrepreneurs constrained by their lack of knowledge or motivation? Lessons from a randomized experiment in Chile*

Jeanne Lafortune† Julio Riutort‡ José Tessada§

February 2017

Abstract

We implemented a randomized experiment in Chile with micro-entrepreneurs participating in a training program. Some groups received the visit of a successful ex-student as a role model; students also received personalized versus group "consulting sessions". Both interventions increase household income one year after, mostly through increased business participation and business income, with role models being particularly cost-effective. Role models did not improve knowledge or use of business practices but rather increased motivation and worked best when similar to the participant. The two interventions benefited different micro-entrepreneurs: role models helped those with less experience while consulting benefited experienced and educated entrepreneurs.

*We acknowledge financial support by a CAF RRC/GDN *Financial Inclusion and Microfinance in Latin America* grant, JPAL-LAC and Fundacion Simón de Cirene. We thank Thorsten Beck, Gustavo Bobonis, Claudia Martinez, and seminar participants at SOLE 2016, SECHI 2016, NEUDC 2016, Notre Dame, Toronto, and PUC Chile for their comments. We thank Pascuala Dominguez and Constanza Palacios for their field work, and Diego Escobar for excellent research assistance. Tessada thanks financial support from Conicyt through Proyecto Fondecyt Regular #1161621. All remaining errors are our own.

†Pontificia Universidad Católica de Chile, JPAL, and IZA. Email: jlafortune@uc.cl. Corresponding author.

‡Universidad Adolfo Ibáñez. Email: julio.riutort@uai.cl.

§Pontificia Universidad Católica de Chile and FinanceUC. Email: jtessada@gmail.com.

1 Introduction

Microfirms are an important player in the labor market of any developing country, particularly for women. However, most microfirms perform poorly: they do not grow, rarely or never hire workers outside of family members, and have low productivity. Several explanations have been suggested for this poor performance, in particular, lack of access to credit and an overall lack of knowledge on how to run a business are among the most popular hypotheses. However, a number of program evaluations have shown limited results for interventions aimed at solving these problems, suggesting that these limits may not be strongly binding for entrepreneurs. Meanwhile, one can also ascertain, from observational studies of microfirms in developing countries, that many of these firms are not a high priority for their owner; for example they often own more than one business, combine entrepreneurship with household chores or another job, etc. Thus, in this paper we attempt to explore whether there may be other barriers, such as a lack of dedication or difficulties in applying knowledge in practice, that could be remediated with interventions that do not focus solely on in-class learning. We evaluate the impact of including a role model comparing it with intensive personalized consulting service in addressing whatever barriers the micro-entrepreneurs may face. We do this using a randomized control trial in the context of a micro-entrepreneur training program in Chile.

The context of Chile is an interesting one since the country has one of the most formalized labor market in the region: while Latin America has rates of formalization of the workforce around 45 percent, Chile had more than 70 percent of its workers working under formal arrangements (Alaimo et al., 2015). One may thus think that subsistence self-employment has little place in this market. Despite this, around 20 percent of the workers in 2006 were self-employed or business owners (Cea et al., 2009). These self-employed are less educated and older, on average, than those working for a wage. The precariousness of that type of business is seen in the lower wage they receive and the fact that many of them report self-employment and business ownership as being a temporary or irregular form of employment (Cea et al., 2009). Women constitute a substantial share of self-employed and since Chile has a very high gender gap in labor participation (Benvin and Perticará, 2007; Mizala et al., 1999), many programs to help women start their own

business have been proposed. The program we collaborated with thus receives substantial financing from governmental authorities to train mostly women to become better entrepreneurs. It is implemented by Simón de Cirene, a Chilean non-profit organization whose aim is to improve the welfare of micro-entrepreneurs through financial and managerial training.

The first element evaluated is the participation of role models as part of the training courses. These role models are successful micro-entrepreneurs that participated in the program in the past, and who attend one of the classes to give their testimonies to the new participants. This is comparable with cases seen in the education sector, where evidence shows that a visit by a role model increase students' effort, their performance on standardized tests and their attendance in primary education (Nguyen, 2008). If participants do not feel like the material taught by the organization is useful to them, they will have limited incentive to learn and implement the techniques taught in their business. Role models may allow participants to see how useful the material being taught is and thus increase their interest in learning the course material to improve the chances of success for their business. However, the role model's eventual impact may come from other channels such as motivation, initiative, reassessing the likelihood of success or by learning about successful entrepreneurs' skills and personal traits.

The second element evaluated is the way of delivering technical assistance within the course. We evaluate and contrast both personalized technical assistance and group-based technical assistance. Personalized assistance has been recognized in a number of papers (Bruhn et al., 2013; Karlan and Valdivia, 2011) as potentially increasing the value-added of training significantly. However, it is also one of the costliest forms of interventions implemented. Specifically, in our case, offering personalized technical assistance, whether to the business or in the classroom, is almost ten times more expensive than offering technical assistance to a group. However, the costs related to personalized sessions to a business or in a classroom differ slightly since the visits to a business involve particularly high travel costs, while the one-on-one sessions in the classroom are costly because the room where the class is being held must be leased for a longer period of time. The purpose of our experiment is thus to evaluate potential alternatives that would give the same type of assistance but in a less costly way. Specifically, we contrast these two personalized technical as-

sistances (when given individually in the classroom or individually in the location of the business) to receiving technical assistance in groups in the classroom. Classroom meetings, whether individualized or in group, were organized before or after the official class time, which was common to all. With the purpose of evaluating the cost-effectiveness of each of these strategies, this study investigates if the place and way of the delivery impact the effectiveness of the technical assistance given.

To study the impact of the elements previously mentioned in the courses, this investigation uses experimental methodology, extensively recognized in academia as an adequate tool for evaluating and measuring programs like the one in this paper (Duflo et al., 2007). The compliance of assignment treatments was relatively high and the pre-characteristics of participants were relatively balanced across treatment groups. We measure business outcomes immediately after the last class with an in-class paper questionnaire and also one year after the start of the program through a phone survey. With these, we were able to measure business outcomes such as the probability of having a business and its health as well as the use of the techniques taught in the class. To understand whether or not these eventual impacts depended upon having an increase in knowledge, we also measured their attendance to class and their learning through their performances on evaluations implemented by the organization, but we found no evidence suggesting that an increase of knowledge was needed.

We find that by the end of the program, individual assistance has no impact on business outcomes nor on behavioral changes except maybe that it raised the student's score on the exit exam and also their probability of obtaining a loan. The visit of a role model, on the other hand, increases the fraction of individuals who are self-employed by 3 percentage points, increases the income they gain in their main occupation, and decreases the number of business assets they purchased. While we find no evidence that the role model improved the knowledge of participants (although it did increase class attendance), we find that they did hold more petty cash, they changed the source of financing of their inputs, they were more likely to apply for seed funds and had a higher level of desired sales for the future. This may all suggest that the role model may have had a particular impact on increasing motivation of the participants. This is confirmed by

feedback received from the participants after the class.

Our endline survey suggested that these interventions continued having some effects one year after they were implemented. Both the visit of the role model and personalized technical assistance raised household income by about US$30 to US$50 per capita, or by about 15 percent of the control group mean. However, these similar outcomes seem to be generated by different channels. There is noisy evidence that the technical assistance improved the management practices and participants' knowledge. For the role model, however, we see very limited impact on business practices, but large improvements in business ownership, profits and formalization.

Furthermore, we explore heterogeneity among these impacts and find that the role model appears to have particularly helped those with a young business while more experienced and more educated entrepreneurs benefited more significantly from the personalized assistance. We find no evidence that the impact of the role model depended on the participant's education, once more indicating that knowledge may not be the appropriate channel of action. Finally, we find evidence that having a more successful role model, or having one who is akin to the participant in terms of gender and age increases the potency of their intervention, suggesting that the quality of the role model affects directly the impact of the intervention.

We think that this is useful input for the discussion on microfirms and micro-entrepreneurship training since the existing literature evaluating the impact of financial and management training programs has not been uniformly positive in its conclusions. In general, the recent experimental evidence has shown both positive and zero effects, and most of the time the effects are heterogeneous along different dimensions, such as gender, firm size, etc. In spite of these less than conclusive results, there are a few lessons that can be extracted from the studies. First, it seems that training is effective when it is taught in simple ways, such as rules-of-thumb (Drexler et al., 2014). There is also some evidence that short programs have limited impact (as shown in Bruhn et al., 2014, for a financial training program in Mexico), while intensive programs seems to have some significant effects (Calderon et al., 2013), thus indicating that the interventions must have enough content to really generate a change in micro entrepreneurs' behavior. It is also observed in most studies from this literature, that complementing in-class sessions with follow-up visits and tech-

nical assistance has significant positive effects, thus suggesting that a more continuous learning process might be beneficial; however, it is also possible that the extra personalized help has little to do with learning but is offering a personalized support that improves the motivation. There is also some evidence that financial support, or monetary rewards might foster entrepreneurs and could have a larger impact, as shown by Cho and Honorati (2014).

In the case of female entrepreneurs, the evidence is even more nuanced. Some of the literature shows that males have a stronger response to training programs offered to both males and females (see Berge et al., 2014, for example). At the same time, female entrepreneurs also seem to benefit from personalized support and follow-up visits as evidenced by the results in Valdivia (2012) for a training program in Peru. This study also shows that the positive impacts are concentrated in the larger businesses, suggesting that either those managing larger businesses are better prepared to adopt the new tools that are being taught, or that these tools are more effective for businesses of a certain size. Interestingly, other results show that the effects are heterogeneous and that women in groups that face stronger social restrictions benefit the most from training (see Field et al., 2010), suggesting that fostering entrepreneurship could become a tool to empower women who are traditionally less likely to participate in business or labor markets.

Finally, the literature underlines the fact that there exists great heterogeneity in the programs offered and highlights the importance of identifying how the different components of these programs operate in order to achieve the expected results (Xu and Zia, 2012) (see also McKenzie, 2010; McKenzie and Woodruff, 2013; World Bank, 2012). Although we have some sense that technical assistance and follow-up visits are useful, there is not much evidence about which kind of support (individual or group assistance, for example), content and mechanisms for imparting those courses provide effectiveness. Moreover, the cost of the programs vary greatly (see Sonobe et al., 2012) therefore a better understanding of the components and mechanisms that explain some of the positive results could help agencies, both private and publicly funded, to increase their cost effectiveness.

This study contributes to the literature and to micro-entrepreneurship training program design by presenting rigorous evidence about which teaching methods are most effective for the technical

assistance portion of training courses for micro-entrepreneurs. We also introduce an innovative idea to the business training literature, which is the direct use of role models as a motivating tool, thus incorporating a tool that has already been tested in the case of high school enrollment (see Nguyen, 2008). Our results highlight the potential benefits that can be obtained if we incorporate role models to otherwise standard micro-entrepreneurship training programs.

Why do role models positively impact micro-entrepreneurs? Wilson (2012) argues, in the context of education, that role models may provide information to individuals about the upside distribution of the returns to their activity. In the context of micro-entrepreneurship, where only a select few succeed, an average individual may only be exposed to experiences of failures or static business without being able to interact with individuals who have been able to bring their business to the next level. Ray (2006) argues that there is a failure of aspirations that generate poverty traps and thus a successful experience shared by an individual of a similar background may impact the decisions of an up-and-coming entrepreneur because by sharing these positive experiences, these new entrepreneurs update their priors. Bursztyn et al. (2014) argue that learning is not the only potential way peers can influence important investment decisions but that social utility also plays an important role. In this context, investors receive utility from owning the same stock as someone else they know. Thus, role models could also modify the behavior of micro-entrepreneurs through either incentivizing them to act like them or giving them the encouragement necessary to take the difficult actions required for making their business successful.

In the psychology literature, the motivational aspect of role models is particularly emphasized. For example, Lockwood et al. (2002) argue that the increased motivation provided by a role model depends on the regulatory concerns of the participants; those who are promotion-focused will be more motivated by role models who show them where they can excel while risk-averse individuals will be more motivated by role models who show them how to avoid problems. Marx and Roman (2002) emphasize that having a woman present when women take difficult math exams can increase women's performance on that test.

Finally, there are many studies that emphasize the potential mentoring character of a role model. For example, teachers akin to their students may be able to mentor them in classroom

(Fairlie et al., 2014; Hoffmann and Oreopoulos, 2009). Overall, there are many potential channels through which the presence of a role model could influence the behavior of micro-entrepreneurs. With a better understanding about the components that determine the success of training and the ability of it to have a real impact on micro-entrepreneurs, it becomes possible to guide the design of the training.

This rest of the paper is organized as it follows. In section 2, the training program and its components are described. Section 3 presents the methodology of the research and the data collection procedure. Section 4 shows the results of the study and the last section concludes the paper.

2 Program description

We will measure the impact of using role models and the different kinds of technical assistance in a set of training courses delivered by the non-governmental organization, Simón de Cirene. This entity conducts training courses aimed at supporting and strengthening micro-entrepreneurs with managing their businesses, with the overall objective of increasing the level and quality of employment in Chile. The classes are financed by social subsidies of the Training and Employment National Service (SENCE), as part of a program for informal micro-entrepreneurs of the first and second income quintiles. Even though the program is targeted to both genders, the participants are mostly women (92% in year 2011).

The program used for the purpose of this study was delivered mainly in the Metropolitan Region of Santiago in the years 2013 and 2014. However, the program is also delivered in some areas of the Valparaiso and Los Lagos Regions. The call for participants is sent through municipalities, who invite micro-entrepreneurs that submit applications to join the training. Although the majority of the invited individuals have a micro-business, the courses are also open to participants that have an interest in developing a micro-business but do not have an enterprise yet. In fact, even though the courses share common elements, there are two types of courses: a first basic course named Assessment Workshop and a second more advanced course named Coaching I for students that have a more developed business. Each class has a maximum of 26 participants. The

course comprises of 12 to 14 4-hour sessions.

Course participation is free and provides financing for out-of-pocket expenses including transportation (Ch$ 3,000 or US$ 4.5 per session). In the first cohort a total of 16 courses were delivered in 11 municipalities of the Valparaiso, Los Lagos and Metropolitan regions. The program is given by a professional with a business degree, who has experience working with small companies, and accompanies the participants through the whole process. There is also a teaching assistant, usually a business school senior student, who is responsible for the technical assistance.

While the basic program is limited to a series of classes, the evaluation measures two additional components. The first one consists of the participation of a role model as a testimony to the class peers. The role model is a former student who has succeeded in her or his business. The visit is a one hour session, approximately, and takes place between classes number 5 and 7, after the mid-program break, which is the period with the highest level of assistance. In this visit, the micro-entrepreneur shares his/her experience with the participants and explains how the knowledge acquired during the course contributed to the success of his/her business project. More so, in many cases, the former student gives out practical information (for example, on how to apply for seed capital funds for micro-entrepreneurs). Before his/her session with the class, the role model is coached by the teacher on how to give a significant testimony that is directed to the subject of interest. The exposure to success stories from peers from similar backgrounds has the potential of making an impact on the participants, who could be inspired and stimulated in their challenges as micro-entrepreneurs and students. It could also stimulate the adoption of proper management practices by improving the perception of the returns on investment of their businesses and projects.

One may be concerned that the role models are unique individuals and as such, each "treatment" may differ from one class to another. Table 1 presents the characteristics of the role models in our experiment, weighted by the size of the classes to which they presented. We can see that on average, role models are similar to participants in terms of age and gender but they are more successful as demonstrated by their business income of about US$4,000 per month and they tend to be more involved in the manufacturing of goods rather than in commerce or services.

The second additional component evaluated is the delivery of technical assistance to the participants. In these technical assistance sessions the participants conduct the following analysis for their business or project: (i) costs, margins and breakeven point analysis, (ii) SWOT Analysis (Strengths, Weaknesses, Opportunities y Threats), and (iii) commercial strategy, considering the case and context of their business. We contrast 3 alternative ways to deliver this part of the program, which have relevant implications for its cost: individual assistance in the place where the micro-entrepreneur develops her business; individual assistance before or after classes in the class location; and group assistance before or after classes. It is important to highlight that technical assistance is delivered to all course participants, including those that do not have a business at the time of the course. In these cases, the people designated to receive assistance in their business place receive it at their homes. The assistant teacher gives the technical assistance between classes number 10 and 14. The schedule and date of the technical assistance is agreed upon between the teacher and the participant, to whom alternative dates and hours are offered for the session. To prevent participants missing the technical assistance session, when a participant does not show to an agreed meeting, the teaching assistance will reach out to the participant 2 more times in order to set a new time and date for the session. Although the provision of a more personalized support, individual technical assistance, and more specifically, assistance delivered at the entrepreneur's location, have the potential to be more effective, these methodologies are more costly to implement so it is fundamental to know if receiving the technical assistance at the business site or individually is more effective or not and in which magnitude. It also provides an interesting contrast to the role model since this is much more personalized to one's business but also provided by someone with whom the micro-entrepreneurs may not closely relate with.

3 Methodology

3.1 Empirical strategy

To evaluate these two different components of training, we use a double randomized assignment of participants to the different components of the program that are being evaluated: sessions

with the role model and different ways of delivering technical assistance. Overall, the study will include the randomization of 66 different courses with 1,712 participants. We first randomly assign half of the courses (34 groups) to receive a session with a role model, and the other half (32 groups) as control groups. The randomization was stratified according to their cohort, county and region. Our initial power calculations suggested that we would be able to detect something larger than 0.2 standard deviations, something smaller than our ex-post calculations, although for some variables we can identify something as small as 0.214 standard deviations. [1] The randomized assignment of the courses to role models was made between classes 3 and 4, before applying our first baseline survey. It is important to point out that the participants were never informed of this, so their answers were not affected by the role model yet.

Within each class, we then randomly allocated one third of the participants to group assistance, the other third to individual assistance and the last third to individual assistance on location. This was done stratifying by class, ownership of an actual business and provision of an informed consent (as long as the information was available). For the technical assistance analysis, the study includes randomization of 53 courses and 1,347 participants divided in three equal groups who received the different modalities. This is a smaller sample because our second cohort never received technical assistance since their program does not include that provision, given that their businesses are more mature. Our initial power calculations suggested that we would be able to detect any effects larger than 0.193 standard deviations. [2] Our updated calculations suggest that our power may be smaller than this, closer to 0.32.

We used four cohorts of participants to achieve our desired sample size. They were in classes starting from March 2013 to March 2014 and surveyed by phone between April 2014 and May 2015. We include fixed effects for the cohorts (through our stratas) to avoid any problems related to seasonality or business cycle fluctuations.

We then identify the impact of these two interventions on outcomes of interest through an OLS regression which includes controls for the baseline indicator and for the stratums used for

[1] Assuming a power of 80%, an ICC of 0.05, an attrition rate of 10%, a compliance rate of 90% and a correlation between baseline and follow-up of 0.5.

[2] Assuming a power of 80%, an attrition rate of 10% and a compliance rate with the treatment assigned of 90%.

this assignment. The specification of the regression is as follows:

$$Y_{it} = \alpha + \beta_{ITT} T_{it} + \delta Y_{it-1} + \gamma X_{it-1} + \varepsilon_{it} \quad (1)$$

where $Y_i t$ is the outcome variable of individual i in the midline or endline survey (t), $T_i t$ is a vector of dichotomic variables that are equal to 1 if the participant was assigned to the treatment and 0 if not, Y_{it-1} is the value of the outcome variable at baseline, X_{it-1} is a vector of control variables including strata dummies, age, gender, education and business sales and ε_{it} is the error term. The impact of the training course component over the reference category is given by the parameter β. This corresponds to the Intention To Treat effects or the impact of being assigned to a relevant treatment. In an imperfect compliance context as ours, the estimation of impact of the program over those individuals who comply with the treatment assigned can be obtained using Instrumental Variables, where the instrument is the assignment of the program and the instrumented variable is the effective reception of the treatment. However, for the purpose of this study we will present only the ITT estimates since we are worried about violations of the exclusion restriction at least in the case of the role model. It is possible that the visit of the role model would affect all students and not only those who were present at the role model session.

Note that we do not have a perfect response rate in our baseline and that this response rate varies from question to question. Thus, when we control for baseline response Y_{it-1}, we include all observations for which the end-line survey was answered but include a dummy if the individual did not respond to the question in the baseline. Using only individuals who provided an answer to all questions would be very costly in terms of sample size, which is why we do not pursue that alternative.

3.2 Data

The data collection of this experiment included the implementation of three survey instruments in different moments in time. Together with the application form, a short survey on analytic abilities and financial knowledge was included (this is referred to as LB0). This survey included

four mathematical questions to capture the analytic abilities of the participants before the training and an additional question that measures the level of financial alphabetization. In the fourth class, before the role model session or the technical assistance were provided, a second baseline survey was conducted (LB1). The objective was to characterize the participants in terms of their economic situation, labor supply, entrepreneurship, access to credit and banking and adoption of financial and management techniques. Once the training was concluded, a follow-up survey was applied (SEG0) to obtain information, about the participants in terms of the socioeconomic condition of their households, business situation, access to credit and banking, adoption of financial and management techniques, evaluation of the technical assistance received and evaluation of the role model, if applicable. This survey was collected in three different instances. First, the participants who were present in the last class answered the survey there. Second, those who were not present in the last class but who did successfully graduate from the program were asked to answer the survey in their "graduation ceremony" which shortly followed the end of the class. Finally, the rest of the participants were surveyed by phone. Finally, a year after the beginning of the class, a phone survey was conducted (SEG1) where we measured the participants' socioeconomic conditions, business situation and techniques.

All the surveys collected during the course were answered by the students in class and supervised by the teachers and assistants of each class. In order to make sure the survey was correctly carried out and answered, we prepared detailed instructions with steps that the teachers should follow and protocols of delivering of the survey, which had to be read in advance by the instructors. For the follow-up survey, this was complemented with the supervision of a member of the JPAL-LAC team in order to improve the quality of the data.

In addition to the surveys, this project used administrative data about the participants and the classes, all collected by Simón de Cirene as part of their internal procedures for attendance tracking. This data included the results of two tests given during the course, attendance and application forms, which included information about each participant's employment and educational history, business performance of their microenterprise and basic demographic information. Finally, the teachers completed a form with process indicators as well, with information about the quality of

the role model session, personal characteristics of the teacher giving the technical assistance and compliance of the treatments assigned. All this information was used in the analysis for a better understanding of the mechanisms of impact of the project. The response rates were 78 percent in SEG0 and 70 percent in all other surveys.

In Appendix Table A.1 we present the characteristics of the participants before the class begins. We observe that women represented 92% of the participants and average age is 45 years. Around 20 percent of participants had not completed high school, 50 percent had a high school degree and the remaining 30 percent had some tertiary (mostly technical) education. Average household income in the last month was CLP$390,000 (US$750). This income level was similar to the per capita income of the first quintile of autonomous income according to the CASEN 2011 poll [3], which corresponds to the quintile where 58 percent of participants classify themselves. In terms of occupation, about 83 percent are self-employed and 4 percent are employed, most have a bank account, and about half have formal credit.

Profits reported by the participants are in general low and lower than their incomes suggesting that the participants complement their profits with other sources of earning. Most devote less than full time hours to their business, only a third declare paying VAT taxes and few have workers. They have pretty bad managerial and financial skills; they infrequently do book-keeping, their financial knowledge is about 2 questions answered correctly out of 4, only half know how to compute revenue and half obtain 5/7 in the first exam they take during their class. Most of the businesses are financed out of proper savings, from bank loans or from family loans. Microcredit is not important in this group.

We then present in Table 2 the outcomes of interests we will measure. At the end of the class, we questioned individuals about their income (both total and from main occupation), and their employment status. We also asked whether they had a bank account, whether they had asked a bank for credit and whether they had obtained credit. We measure the health of the business by measuring their amount of sales, costs and profits last month. We also know the number of employees they had last month and the wagebill they paid. We know the number of hours they

[3]The CASEN survey is a national survey, conducted every two or three years, aimed at characterizing the socioeconomic situation of households in Chile.

spent in their business and also whether they are registered with the Servicio de Impuestos Internos (SII), the tax authority. We also measure, in the short-run, the quality of their management practices using several indicators. The number of marketing actions taken, which is simply the sum of the number of marketing actions that they actually undertook. These indicators include: visiting competitors to check prices and products, asking clients if they would like new products, asking suppliers if there are any new products selling well on the market, asking ex-customers to understand why they stopped buying, making special offers and making publicity efforts. This variable takes a value between 0 and 7. Then we measure the number of financial analyses they performed. This includes sales and purchase registers, looking at the books to know how much money they have, having a written budget, having a credit tally for customers, checking the business performance and maintaining a business inventory. Finally, book-keeping methods are the sum of business documents the micro-entrepreneur prepares from the following list: profit/loss balance, cash flow, balance sheet, receipt and disbursements and other general book-keeping documents. We measured how much petty cash they keep at hand for their business to measure their liquidity. We also asked them to answer 2 questions measuring their economic knowledge: in one case they had to compute opportunity cost while in the other, revenues from income and costs. We also use the administrative records of Simon de Cirene to obtain their performance in the last exam given in class.[4] Finally, we also measure investment behavior using which sources they use as financing (bank, family loan, government, micro-credit or others), whether they applied for a seed fund, what is the number of purchased assets they made in the last 3 months and their desired growth sales (measured as percentage of their initial sales).

In the longer-run, we repeat many similar variables but add a few more. Instead of measuring the income from their main occupation, we ask whether the individual provides the household's main source of income. We measure whether the individual has changed sectors or locations. We also measure the variance in sales of last year by asking the micro-entrepreneur to rank each trimester as bad, good or very good, which we then translate into a 1, 2 or 3, respectively. We

[4]Such exams are taken during the class, we use the first grade as baseline as it occurs before the visit of the role model. The second is between the visit of the role model and the personalized assistance while the last one is after both activities.

then calculate the standard deviation of the measure over the last 12 months (4 trimesters). Our management measures are built similarly, except for the financial analyses where the questions changed slightly but involved similar topics: have you revised your business profitability in the last 3 months, do you have an ordered accounting register, do you keep a written inventory, do you keep a record of all sales and purchases, do you have a register of all bills and do you keep a record of all credit sales.

3.3 Balance and compliance

Appendix Table A.1 also presents tests of balance for the baseline. We find limited differences between the treatments and the controls, as one would expect given our randomization. While some of them are statistically significant, over all there are no more numbers there that are significant than what would be expected given the number of outcomes presented. Furthermore, we include a number of controls in the regression to diminish the concerns regarding the role of initial imbalance in our results.

Even if the experimental groups are comparable, the possibility of identifying impacts depends on the level of compliance of the random assignment, meaning that those assigned to treatment effectively received the treatment. In this case, there are two reasons why this may not hold: the participant may have abandoned abandon the course before the role model session or the technical assistance occurs, or the corresponding technical assistance was not received by the participant.

Appendix Table A.5 shows the level of compliance of the random assignment for the role model group and for the technical assistance group. On average, 80.5 percent of the participants assigned to a role model received the treatment. None of the controls received it. On the other hand, only about 70 percent of the participants received the technical assistance they were assigned to. The highest rate of compliance was registered for the technical assistance in the business location (77 percent), followed by the individual technical assistance in class (71 percent) and finally, the group technical assistance in class (66 percent).

It is important to mention that, contrary to the case of the role model, an important amount

of the incompliance with the assigned treatment in technical assistances is due to the fact that the assistance was not given or that they received a different technical assistance than the one they were assigned to. This is particularly true for group assistance when the absence of other classmates transformed the session from a group one to an individual session for some of the groups.

Our randomized design could also be endangered by attrition. Attrition is a problem for our surveys where we only capture about 85 percent of our original sample in the mid-line and less than 70 percent in the end-line. We find no correlation, however, between the treatment assignment of the personalized assistance or the role model and the probability of attriting, as shown in Table A.2. Not only are the effects not statistically significant but also relatively small, explaining between 1 to 3 percentage point of the attrition probability.[5] Furthermore, as we show in Appendix Tables A.3 and A.4, we find that the control and treatment group differed in the characteristics of individuals who attrited in only a few characteristics. In the case of the long-run survey, the role model group would include individuals with worse employment records and worse initial business characteristics among those who answered than those who did not. We thus find that these differences, for which we control, are unlikely to explain the results we later present.

4 Results

Having shown that our randomization was performed adequately and that balance was overall achieved, we now turn to the impact that each type of intervention had on outcomes of interest.

4.1 Short-run

We first explore whether some impacts can be observed between the beginning of the class and its conclusion. One has to remember that the intervention of the role model occurs earlier

[5] We have explored the use of Lee bounds but they are extremely wide when not including any covariates and when including them, we usually violate the monotonicity assumption, meaning that within some sub-groups, the treatment increases the probability of attriting while in others, it decreases it. For this reason, we did not pursue the construction of bounds further.

than that of the personalized assistance, making it more likely to identify differences in the short run within our role-model intervention than the personalized assistance intervention.

Table 3 shows that even within a limited time period, the role model had a number of positive impacts. We find that individuals who were in classes where a role model was assigned had much higher income from their main occupation in the last month than those who did not. However, this did not translate into higher total income, suggesting that it may capture a shift in the time devoted to the highest earning activity, potentially the micro-firm. We find that the fraction of individuals who was self-employed was also 3 percent points higher in the group assigned to a role model than those who were not. This is not observed in any of the two forms of personalized assistance. The only positive impact of those types of interventions was on credit access for the personalized assistance provided in-class. The health of the business appears to have been relatively unaffected by the intervention, but those visited by a role model increased their size, which led them to an increase in sales, costs, profits and wagebill (only costs and wagebill increased significantly).

What could explain the changes generated by the role model? We first look at whether the role model changed the participation rate. As can be seen from Figure 1, we find weak evidence that individuals who were in role model group decreased their attendance to class less as time went by than those without such a visit. This is particularly true for classes after class 7, where a role model should have visited all "treated" groups. Nevertheless, only on one such date is the effect statistically significantly different from 0 and only at 10 percent. Thus, it is very unlikely that the role model promoted higher attendance and higher in-class learning. No pattern was found for the personalized assistance groups.

We then look for changes in management practices as shown in Table 4. We find no strong evidence that the role model promoted an increase in knowledge. We find only that the amount of petty cash in the business increased for those visited by a role model than those who were not. However, groups visited by a role model actually answered our question regarding opportunity cost incorrectly by an additional 10 percent. Personalized assistance, on the other hand, seem to increase the score of individuals on the exit exam although, only significantly for the assistance provided in class.

We then look at investment behavior and find significant changes for those assigned to receive a visit from a role model compared to those who were not. Reliance on family loans and one's own savings were reduced, while 1 percent more of them used government funds, albeit not significantly, and 1 percent more used other sources on funding. This switch in sources of funding also seemed to accompany a change in what the investment was for, as the number of business assets purchased in the last 3 months significantly decreased for those assigned to a role model. Finally, these individuals seemed to have been more positive about their business since the fraction which applied to government seed funds was 7 percent larger and the desired sales growth was 4,000 percent larger.[6] All this suggests that the impact of the role model may be coming from a channel other than increased knowledge, and even if it seems to be linked to large expected growth in sales, it does not leads to an (inefficient) increase in investment. We find limited impact of the personalized assistance on any of our behavioral proxies, except on the reliance on family loans which is diminished for those who received personalized assistance in-class.

We asked the participants in the role model sessions to evaluate the performance of the role model and their answers can also help us understand how the role model may have operated and interacted with the participants. We show the detail of their responses in Appendix Table A.6. According to the reports from the participants, the role model motivated them to be persistent and communicated the value of being an entrepreneur. On the other hand, respondents seemed to think that the role model was not so effective at providing useful information and did not get particularly "close" to participants.

It could be, however, that the personalized assistance, while not demonstrating changes in the short-run, could change the perception of the service provided. We test this using self-reported measures of satisfaction comparing the two delivery types of personalized assistance compared to the one given in a group. Results are presented in Appendix Table A.7 where we find no evidence that offering technical assistance in a personalized format improved the perception of benefits from the micro-entrepreneurs point of view.

[6]The size of the desired sales growth reflects that some respondents have extremely illogical dreams. We also asked individuals about the probability that they would achieve this goal and we find no statistically significant difference there. Interestingly though, this results is not driven by the students without a business, but rather those that have a business but are relatively small in terms of sales.

4.2 Long run

Having found a significant impact of the role model in the short-run and a more limited impact for the personalized assistance (compared to group), we now turn to the impact these two programs had one year after the beginning of the classes, around 9 months after the end of training. Table 5 shows that income per capita (and also total income, although not shown) is, 1 year after the beginning of the classes, larger for individuals who were allocated to the role model group or who were allocated to receive personalized assistance instead of group assistance. The magnitudes are relatively comparable (around 30 to 40 US dollars) between all columns and correspond to about 15% of the control group mean. This is not due to substitution within the household as the respondent is not more likely to be the main income source of the household under any treatments. However, it does seem to correspond in a large fraction to a better business performance as having a business was 3-5 percent larger in the treatments than in the control groups, although this is only significantly different than zero for the role model group. This appears to be driven entirely by a higher business survival rate for those who experienced the visit from a role model as the rate of new business creation for those who did not have a business in the baseline is actually slightly higher for those who did not interact with an ex-student.

The fact that this increase in household income seems to stem from better businesses is supported by the business outcomes that are also presented in Table 5. For individuals who received individualized assistance, there was a 10 percent higher chance of them having switched business sectors compared to those who received their assistance in a group format. Similarly, individuals assigned to the role model group were 6 percent more likely to be operating from a different location than before which could be a sign that they are still selecting the location for their business. Being assigned to a role model also increased significantly one's probability of being registered with the tax authority one year later by 6 percent. We find no effect on the hiring front, but we do find evidence that sales increased (significantly so for the role model group and the personalized assistance at the business location) and that profits also improved (although only significantly for the role model group). We find no evidence that credit and banking were strongly altered by our interventions.

When we look at distributions of profits or sales, we see an overall shift to the right in both variables when comparing the role model group to the control group. This suggests that the role model group did not simply increase the business performance for a few individuals but that it appears to have had a broader impact. We also found that when focusing only on the sample that had a business and that reported profits in the baseline, our interventions appear to have increased the probability of an increase in profits by 5 to 10 percentage points.

We then turn to see if these long-term improvements reflect better business practices. This is presented in Table 6. We find no evidence that the role model significantly impacted business practices a year after the class. Not only are none of the coefficients significant but they are are also relatively small. This would suggest that the benefits that the role model gave to the participants did not have an impact on learning in class, at least for the elements that we were able to measure. The personalized assistance, however, appears to have improved the number of business analyses done and improved the ability of micro-entrepreneurs to properly calculate revenues (when provided in the classroom). There is also some evidence that this type of personalized assistance changed the financing of the inputs compared to the group provision.

Only in the last cohort of the program we introduce more qualitative types of feedback regarding the class. Our results are thus much noisier than for the rest of the variables presented above. However, what we find is that the interventions did not change the main contribution people identified of the class nor their satisfaction with the class.

4.3 Interactions

The previous section clearly showed that being randomly selected for a given treatment appears to have had significant impact on average, even just one year after the beginning of the program. We now explore whether individuals with certain characteristics responded more or less to the interventions. Given that the personalized assistance in class and in the business did not show a large difference in the main results, we will now merge both treatments and compare them jointly to group-level assistance.

Table 7 shows whether the impacts differ by the degree of experience in business the micro-entrepreneur had at the beginning of the class. We first contrast individuals who had a business and those who did not at baseline. This is presented in the first column for the differential impact of the role model and in the third one for the impact of the personalized technical assistance. In a separate regression, we then restrict our sample to individuals who had a business in the baseline and report the interaction between the treatment and whether the individual had a business for more or less than 5 years at the beginning of the class. We report, in the second and fourth column, the differential impact of the treatment for older firms compared to younger firms. We prefer this strategy to the one where we classify individuals as not having a business, having a young business and having a more established business all in the same regression because we have a number of missing values for the age of the business, which would reduce our sample size for the comparison of those with and without businesses. However, results are very similar when we perform the comparisons in one single regression.

The first columns of Table 7 show that the role model generated an increase in overall income and in income from the main occupation most strongly for individuals who did not have a business before the class began. However, this is not the cause for entrepreneurship as the differential impact on self-employment is actually negative, albeit not significant. For those without a previous business, we observe that being assigned to a role model decreased the hours devoted to the business. It also significantly reduced the reliance on family loans, suggesting that the role model may have discouraged some individuals who did not previously have a business to launch themselves too soon into entrepreneurship. Looking at business experience, we see a limited difference for our knowledge measures. Those who had a young business appear to have learned more but those without a business increased the amount of petty cash on hand by a higher fraction. We see no statistically significant differences for the financing of the inputs. The motivating impact of the role model on desired sales is largest for those without a business but it is not statistically significant.

The last 2 columns of Table 7 show the same interactions but this time for the personalized assistance. We find that the limited impact of that intervention in the short-run is largest for those

with an established business, in terms of the score on the exit exam or the reduced reliability on family loans. However, the results are overall far from being very precise.

We then explore, in Table 8, what are the differential impacts by business experience in the long-run. We see in the first two columns that gains in income, business survival, dedication to the business, formalization, management practices, etc., are bigger for those who had younger businesses, suggesting that the role model is particularly useful for individuals who have already started a business but do not have a large number of years of experience. When we estimate the impact of the program separately for the three groups, the impact of the role model is only statistically significant for that subset of participants.

The impact of personalized assistance seems to be less clearly related to business experience in the long-run. Individuals with a young business gained the most income but it is those with a more established business that see the largest impact on survival, on hours worked and on financing of assets through savings. This suggests that while personalized assistance may have helped those with young businesses make the decision to end their endeavour, leading to higher incomes, it helped established businesses survive. Thus, overall, we find that the role model may be a better tool for those with less developed entrepreneurship skills who may need increased motivation while the personalized services may be more appropriate for more established business who require "consulting" help that may be more technical.

When we separate the sample of participants by their level of education (as shown in Table 9), we find limited evidence that the role model played a radically different role for those without a high school diploma from those with one. In the short-run, we find no statistically significant differences in the impact of the role model between the two educational attainments. For the consulting services, we find that the increase in knowledge is concentrated in the short-run among those with the most education, but none of the differences are statistically significant. In the long-run, this translates into those with at least a high-school education that received personalized assistance having a larger impact on their income per capita and their business ownership. However, those without a high school education are more likely to operate in a different sector and a different location when assigned to personalized assistance. Again, the gains in business prac-

tices are concentrated among those who are the most educated. These results appear to indicate that while the role model is not particularly complementary with formal education, those with higher levels of education appear to have been able to obtain more benefits from the personalized assistance.

We next turn to evaluating whether the characteristics of the role model influenced the impact it had on participants. In Table 10 we explore whether having characteristics in common with the role model influenced the impact the visit had. We contrast those who are from the same gender as the role model, those who have a similar age as the role model and finally, those individuals who were from the same business sector as the role model. In these cases, we present only the marginal effect of sharing a characteristic in common with the role model, omitting to report the main effect of being assigned to a role model group. We find evidence that individuals who were from the same gender as the role model experienced a larger boost in their short-term income, had a business expansion, increased more significantly their wagebill, reduced more strongly their reliance on family loans and had larger desired sales growth (although the difference in not significant). Those most similar in age had a larger probability of remaining self-employed, having larger profits, working more hours in their business, decreasing more strongly the purchase of assets and decreasing their reliance on savings and family loans. This suggests that the "closeness" of the role model in terms of characteristics may have played a role in influencing the behavior of the participants. On the other hand, the results for those sharing a given business sector with the role model are less clear and more noisy. The lack of positive impact on management practices in the aggregate appears to mask some more positive impacts for those sharing the same business sector. Thus, this suggests that the results we obtained previously are not driven by the role model sharing trade secrets or networks, which would be particularly useful for those in the same sector. In the next three columns of this table, we repeat this exercise but this time looking at longer-run outcomes. We find that again there is some evidence that the benefits of the role model accrued principally to individuals who were similar in terms of gender and age. Those who shared these characteristics experienced larger gains in income, more business ownership, more formalization, higher profits, etc. We do find slightly stronger evidence for those who shared a business sector

with the role model that they may have benefited more in the longer-run. We see this evidence as indicative of the motivating aspect of the role model as the informational or network sharing aspects are likely to be stronger for individuals in the same business sector than sharing gender or age.

Finally, given that the motivational factor of the role model may depend on the success that this person has had, we finally interact the impact of being assigned to a role model with the level of income reported by the role model in our questionnaire. These are reported in Table 11. We find that in the short-run, higher income role models had a more important impact on income growth, business ownership, business size and profitability and on the desired sales growth. This suggests that the credibility of the role model is relevant in explaining our results. However, we also find evidence that part of this appears to revert in the long-run. Individuals paired with a high income role model experienced lower gains in income in the long-run but were also less likely to finance their inputs through formal bank loans, although only the latter is statistically significant. On the other hand, they were more likely to operate from a different location, keep more petty cash on hand and use more government funding. Their financing of inputs was also impacted more strongly. Thus, we find some indication that a more successful entrepreneur may be more able to motivate participants in the short-run but that not all of that impact translates into better outcomes in the longer-run.

The next set of columns of that table show the impact of the role model with a predicted probability of business survival. We use the control group and our baseline characteristics to try to see which individuals would be most likely to still have their business a year after the beginning of the classes. What we want to capture here is whether the role model helped individuals who were likely to remain in business without them to remain, or whether the role model helped to keep in business some microfirms that would have been likely to fail otherwise. We find that in the short-run, as shown in column (3), the role model does not appear to have particularly benefited individuals with a higher probability of success. If anything, many of the elements we found impacted from a visit of the role model are less strongly impacted for individuals with a higher probability of success. This would suggest that the role model may have benefited more individ-

uals who would have not been very likely of having a business in the future. In the longer-run, however, we do find some evidence that the role model helped particularly businesses that were likely to be successful. This suggests that the motivational factor of the role model may have fooled some non-performing entrepreneurs initially but in the long-run, the benefits we document appear to be driven by higher success for firms that were likely to remain even without this intervention.

While not reported here, we also explore the link between the interventions and the profits in the baseline. This implies that we are restricting our attention to only those who had a business, but it is useful in understanding the link. We find, consistent with the results presented thus far, that the role model helped more individuals who had profits below the median in the baseline, specifically in the longer-run. While not many interactions are significant, the pattern is widely consistent. This suggests that the role model was able to improve the outcomes of individuals less well prepared and less sophisticated than the technical assistance group. However, since it also deterred entry into business, it is unclear whether it misled individuals about thinking that they could go into any business. Regardless, it seems to have removed some barriers for low-performing entrepreneurs to obtain higher profits.

5 Conclusions

We have documented the impact of two interventions that modified the way a standard micro-entrepreneur training program functions. We find that being assigned to receive a motivational speech from an ex-student or a personalized (versus group) technical assistance session generates significant, and quantitatively similar, increases in income nine months to one year after the intervention. However, the role model appears to play a role by mostly increasing the motivation of participants while the personalized assistance may be actually offering better knowledge. Role models are particularly useful in helping young entrepreneurs who already had a business while consulting appears to be more useful to established businesses and those with higher educational attainment. Having a more successful and a more similar role model also seem to be relevant.

While the two interventions have similar impacts, the visit of the role model was a tenth of the cost of the other, making it much more cost effective.

We find this indicative that there are other barriers facing entrepreneurs other than credit access and knowledge, which have been the focus of much of the policy interventions in the last years. Individuals may simply lack the motivation to make their business successful and instead aim mostly for subsistence. Our results suggest that altering this frame of mind may be required to foster more growth. However, our results also suggest that this type of intervention is mostly useful for individuals with limited experience. Consulting services may be more useful for more established and educated micro-entrepreneurs, further suggesting that one size may not fit all.

It is thus interesting to think whether or not we should be thinking of tailoring micro-entrepreneurship training to different types of students. Our results suggest that this may be an avenue to help make the training more effective or at least target specific interventions to a sub-group of the participants. Further research is needed on this.

References

ALAIMO, V., M. BOSCH, D. S. KAPLAN, C. PAGÉS, AND L. RIPANI (2015): *Jobs for Growth*, vol. 90977 of *IDB Publications (Books)*, Inter-American Development Bank.

BENVIN, E. AND M. PERTICARÁ (2007): "Análisis de los Cambios en la Participación Laboral Femenina en Chile," *Revista de Análisis Económico – Economic Analysis Review*, 22, 71–92.

BERGE, L. I. O., K. BJORVATN, AND B. TUNGODDEN (2014): "Human and financial capital for microenterprise development: Evidence from a field and lab experiment," *Management Science*, 61, 707–722.

BRUHN, M., G. IBARRA, AND D. MCKENZIE (2014): "The minimal impact of a large-scale financial education program in Mexico City," *Journal of Development Economics*, 108, 184–189.

BRUHN, M., D. S. KARLAN, AND A. SCHOAR (2013): "The impact of consulting services on small and medium enterprises: Evidence from a randomized trial in Mexico," Policy Research Working Paper 6508, World Bank.

BURSZTYN, L., F. EDERER, B. FERMAN, AND N. YUCHTMAN (2014): "Understanding mechanisms underlying peer effects: Evidence from a field experiment on financial decisions," *Econometrica*, 82, 1273–1301.

CALDERON, G., J. M. CUNHA, AND G. DE GIORGI (2013): "Business literacy and development: Evidence from a randomized controlled trial in rural mexico," Working Paper w19740, National Bureau of Economic Research.

CEA, S., M. I. CONTRERAS, C. MARTÍNEZ, AND E. PUENTES (2009): "Trabajadores por cuenta propia: ¿Quiénes son? ¿De dónde vienen? ¿Para dónde van?" Working Paper WP308, University of Chile, Department of Economics.

CHO, Y. AND M. HONORATI (2014): "Entrepreneurship programs in developing countries: A meta regression analysis," *Labour Economics*, 28, 110–130.

DREXLER, A., G. FISCHER, AND A. SCHOAR (2014): "Keeping it simple: Financial literacy and rules of thumb," *American Economic Journal: Applied Economics*, 6, 1–31.

DUFLO, E., R. GLENNERSTER, AND M. KREMER (2007): "Using randomization in development economics research: A toolkit," in *Handbook of Development Economics*, Elsevier, vol. 4, 3895–3962.

FAIRLIE, R. W., F. HOFFMANN, AND P. OREOPOULOS (2014): "A Community College Instructor Like Me: Race and Ethnicity Interactions in the Classroom," *American Economic Review*, 104, 2567–91.

FIELD, E., S. JAYACHANDRAN, AND R. PANDE (2010): "Do traditional institutions constrain female entrepreneurship? A field experiment on business training in India," *The American Economic Review*, 125–129.

HOFFMANN, F. AND P. OREOPOULOS (2009): "A professor like me the influence of instructor gender on college achievement," *Journal of Human Resources*, 44, 479–494.

KARLAN, D. AND M. VALDIVIA (2011): "Teaching entrepreneurship: Impact of business training on microfinance clients and institutions," *Review of Economics and Statistics*, 93, 510–527.

LOCKWOOD, P., C. H. JORDAN, AND Z. KUNDA (2002): "Motivation by positive or negative role models: regulatory focus determines who will best inspire us." *Journal of Personality and Social Psychology*, 83, 854.

MARX, D. M. AND J. S. ROMAN (2002): "Female Role Models: Protecting Women's Math Test Performance," *Personality and Social Psychology Bulletin*, 28, 1183–1193.

MCKENZIE, D. (2010): "Impact Assessments in Finance and Private Sector Development: What Have We Learned and What Should We Learn?" *World Bank Research Observer*, 25, 209–233.

MCKENZIE, D. AND C. WOODRUFF (2013): "What are we learning from business training and entrepreneurship evaluations around the developing world?" *World Bank Research Observer*, 29, 48–82.

MIZALA, A., P. ROMAGUERA, AND P. HENRIQUEZ (1999): "Female labor supply in Chile," Tech. rep., Centro de Economía Aplicada, Universidad de Chile.

NGUYEN, T. (2008): "Information, role models and perceived returns to education: Experimental evidence from Madagascar," Unpublished manuscript.

RAY, D. (2006): "Aspirations, poverty, and economic change," *Understanding poverty*, 409–421.

SONOBE, T., Y. HIGUCHI, AND K. OTSUKA (2012): "Productivity growth and job creation in the development process of industrial clusters," Policy Research Working Paper 6280, World Bank.

VALDIVIA, M. (2012): "Training or technical assistance for female entrepreneurship? Evidence from a field experiment in Peru," Tech. rep., GRADE working paper.

WILSON, W. J. (2012): *The truly disadvantaged: The inner city, the underclass, and public policy*, University of Chicago Press.

WORLD BANK (2012): *World Development Report 2012: Gender Equality and Development*, World Bank.

XU, L. AND B. ZIA (2012): "Financial literacy around the world: an overview of the evidence with practical suggestions for the way forward," Policy Research Working Paper 6107, World Bank.

6 Tables and figures

Figure 1. Difference in class attendance in groups with and without role models

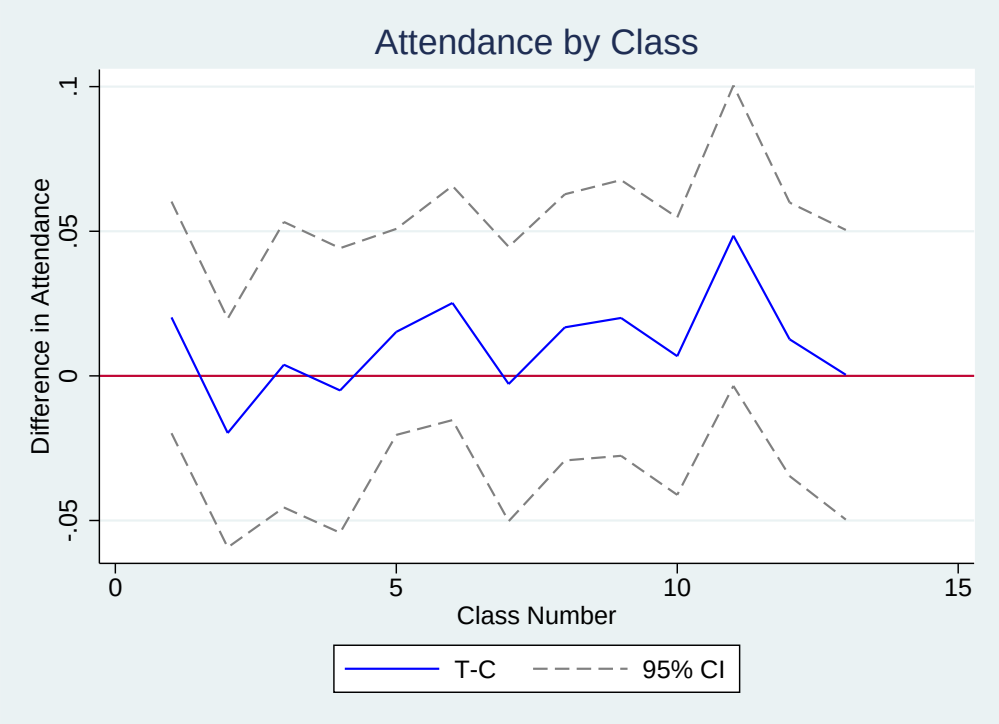

Table 1. Role Model Characteristics

Variable	N	Mean	Std. Dev.
General:			
Women	707	0.93	0.25
Age	631	48	9.93
Income	528	1,998,439	3,370,560
Presentation length (minutes)	707	43	12.41
Sector:			
Manufacturing	710	0.64	0.48
Services	710	0.28	0.45
Stores	710	0.04	0.19
Other	710	0.04	0.19

Table 2. Summary statistics: outcome variables

Variable	At the end of the classes			One year after the classes		
	N	Mean	St. Dev.	N	Mean	St. Dev.
Socioeconomic:						
Income (M$) last month	1,159	445	577			
Income main occ. (M$) last month	1,098	293	643			
Income per capita (M$)				981	126	116
Main household income source				1,113	0.46	0.50
Employed	1,313	0.07	0.25			
Self employed	1,313	0.83	0.37			
Has business				1,131	0.79	0.41
Entrepreneurship:						
Sales (M$) last month	1,018	446	988	805	554	968
Costs (M$) last month	883	255	553	738	248	759
Profits (M$)	861	191	671	729	309	576
Weekly hours worked at business	1,087	18.83	19.79	1,109	29.11	25.16
Number of employees last month	617	0.65	2.10	1,058	0.43	1.11
Wage bill (M$) last month	583	67.15	243	1,006	49.24	190
Registered with tax authority	1,436	0.33	0.47	1,112	0.38	0.49
Desired sales growth (%)	910	2,695	49,019			
Probability of achieving desired sales level	1,209	0.68	0.16			
Weighted Desired Sales Growth	877	1,594	26,241			
Is in a different sector				659	0.46	0.50
Operates from a different location				677	0.40	0.49
Variance in sales in last year				829	0.63	0.30
Credit and banking:						
Has a bank account	1,325	0.63	0.48	886	0.81	0.39
Has asked bank for credit	1,330	0.21	0.41	887	0.24	0.43
Has obtained credit	1,333	0.31	0.46	716	0.05	0.21
Investment behavior and financing:						
N purchased assets (0-11)	1,171	2.82	2.12			
Savings	1,081	0.78	0.42	872	0.89	0.32
Bank loan	1,081	0.23	0.42	871	0.18	0.39
Family loan	1,081	0.24	0.43	872	0.31	0.46
Government funds	1,081	0.02	0.14	872	0.37	0.48
Micro-credit funds	1,081	0.07	0.26	872	0.29	0.45
Other sources	1,081	0.03	0.17			
Applied for seed fund	1,285	0.30	0.46			
Management practices:						
Marketing actions (0-7)	1,396	3.20	2.35	897	3.88	1.72
Business analysis (0-6)	1,396	3.75	1.90	894	4.08	1.49
Book-keeping methods (0-6)	1,396	1.10	1.43			
Petty cash (M$)	984	108	176	802	42.63	112
Knows how to compute opp. cost	1,096	0.66	0.47	1,065	0.74	0.44
Knows how to compute revenue	1,096	0.85	0.36	1,065	0.66	0.47
Score in exit exam (0-7)	943	6.08	1.34			

Table 3. Impact on Socioeconomic and Business Variables - Short-Run

	Role Model		Technical Assistance		
Variables	N	β_{RM}	N	β_{AC}	β_{AN}
Socioeconomic:					
Income (M$) last month	1,154	-2.72	927	8.46	-17.63
		(28.68)		(32.97)	(27.57)
Income main occupation (M$) last month	1,093	64.37*	877	-2.58	18.62
		(32.56)		(29.66)	(40.64)
Employed	1,307	-0.01	1,056	-0.01	-0.01
		(0.01)		(0.02)	(0.02)
Self employed	1,307	0.03**	1,056	0.01	-0.00
		(0.02)		(0.02)	(0.02)
Entrepreneurship:					
Sales (M$) last month	1,014	33.05	806	-11.44	52.81
		(49.42)		(59.57)	(70.46)
Costs (M$) last month	879	41.06*	703	11.51	55.52
		(23.16)		(33.12)	(37.96)
Profits (M$)	857	43.31	686	-39.65	48.47
		(42.95)		(47.71)	(74.82)
Weekly hours worked at business	1,081	0.55	974	-0.09	-1.75
		(0.88)		(1.31)	(1.27)
Number of employees last month	613	0.15	486	0.11	0.09
		(0.10)		(0.20)	(0.14)
Wage bill (M$) last month	579	32.17**	459	-61.56	-36.53
		(15.30)		(37.98)	(32.65)
Registered with tax authority	1,425	-0.01	1,146	0.01	0.01
		(0.02)		(0.03)	(0.03)
Credit and banking:					
Has a bank account	1,319	0.01	1,065	0.01	-0.01
		(0.02)		(0.03)	(0.03)
Has asked bank for credit	1,324	-0.03	1,070	0.05	0.03
		(0.02)		(0.03)	(0.03)
Has obtained credit	1,327	-0.02	1,073	0.06*	0.01
		(0.02)		(0.03)	(0.03)

Notes: Regressions control for strata, baseline (when available) and general individual and business characteristics. Standard errors robust to heteroscedasticity for technical assistance and clustered at course level for role model in parentheses. $*p < 0.1, **p < 0.05, ***p < 0.01$

Table 4. Impact on Firm Management - Short-Run

	Role Model		Technical Assistance		
Variables	N	β_{RM}	N	β_{AC}	β_{AN}
Management practices:					
Marketing actions (0-7)	1,389	0.15	1,343	0.04	-0.06
		(0.12)		(0.13)	(0.14)
Business analysis (0-6)	1,389	0.14	1,343	0.14	0.02
		(0.10)		(0.11)	(0.11)
Book-keeping methods (0-6)	1,389	0.06	834	-0.08	-0.08
		(0.08)		(0.11)	(0.11)
Petty cash (M$)	980	14.86**	783	17.27	0.19
		(6.63)		(15.10)	(14.31)
Knows how to compute opp. cost	1,092	-0.10***	904	-0.01	0.01
		(0.04)		(0.04)	(0.04)
Knows how to compute revenue	1,092	0.03	904	0.01	0.04
		(0.03)		(0.03)	(0.03)
Score in exit exam (0-7)	937	0.16	745	0.21**	0.16
		(0.17)		(0.11)	(0.10)
Investment behavior and financing:					
N purchased assets (0-11)	1,166	-0.31***	930	0.05	0.14
		(0.08)		(0.12)	(0.12)
Desired sales growth (%)	906	4,022*	723	4,022	-1,717
		(2,223)		(2,718)	(1,934)
Savings	1,076	-0.02	855	0.01	0.03
		(0.03)		(0.04)	(0.04)
Bank loan	1,076	-0.01	855	-0.03	-0.00
		(0.02)		(0.03)	(0.03)
Family loan	1,076	-0.04	855	-0.06*	-0.01
		(0.03)		(0.04)	(0.04)
Government funds	1,076	0.01	855	0.01	0.01
		(0.01)		(0.01)	(0.01)
Micro-credit funds	1,076	0.00	855	0.03	-0.00
		(0.02)		(0.02)	(0.02)
Other sources	1,076	0.01*	855	0.02	0.01
		(0.01)		(0.02)	(0.01)
Applied for seed fund	1,280	0.07**	1,034	0.06	0.04
		(0.03)		(0.04)	(0.04)

Notes: Regressions control for strata, baseline (when available) and general individual and business characteristics. Standard errors robust to heteroscedasticity for technical assistance and clustered at course level for role model in parentheses. $*p < 0.1, **p < 0.05, ***p < 0.01$

Table 5. Impact on Socioeconomic and Business Variables - Long-Run

	Role Model		Technical Assistance		
Variables	N	β_{RM}	N	β_{AC}	β_{AN}
Socioeconomic:					
Income per capita (M$)	978	17.09**	773	28.25**	20.43**
		(7.32)		(11.61)	(8.84)
Main household income source	1,110	0.01	878	0.01	-0.04
		(0.03)		(0.04)	(0.04)
Has a business	1,128	0.03*	892	0.05	0.03
		(0.02)		(0.03)	(0.03)
Entrepreneurship:					
Is in a different sector	657	0.03	529	0.04	0.10**
		(0.03)		(0.05)	(0.05)
Operates from a different location	675	0.06*	542	0.00	-0.03
		(0.03)		(0.05)	(0.05)
Hours per week	1,106	1.65	873	-0.66	-1.47
		(0.99)		(1.95)	(2.04)
Registered with tax authority	1,109	0.06**	877	0.02	0.02
		(0.02)		(0.03)	(0.04)
Number of workers last month	1,056	-0.00	853	0.05	0.12
		(0.05)		(0.08)	(0.10)
Wage bill (M$) last month	1,004	-10.21	814	-0.21	12.43
		(7.75)		(14.22)	(16.40)
Sales (M$) last month	802	92.71*	622	58.21	185*
		(50.59)		(70.80)	(95.76)
Costs (M$) last month	735	7.11	575	-67.92	55.60
		(34.77)		(84.38)	(74.95)
Profits (M$) last month	726	96.17***	567	47.24	96.52
		(29.18)		(49.62)	(64.45)
Variance in sales in last year	827	0.02	638	-0.05	-0.01
		(0.02)		(0.03)	(0.03)
Credit and banking:					
Has a bank account	883	0.01	680	0.04	0.00
		(0.02)		(0.04)	(0.04)
Has credit	884	0.01	682	-0.07	-0.09**
		(0.03)		(0.05)	(0.04)
Obtained bank credit (last 6 months)	713	-0.02	564	0.01	-0.01
		(0.01)		(0.03)	(0.03)

Notes: Regressions control for strata, baseline (when available) and general individual and business characteristics. Standard errors robust to heteroscedasticity for technical assistance and clustered at course level for role model in parentheses. $*p < 0.1, **p < 0.05, ***p < 0.01$

Table 6. Impact on Firm Management - Long-Run

	Role Model		Technical Assistance		
Variables	N	β_{RM}	N	β_{AC}	β_{AN}
Management practices:					
Marketing actions (0-7)	894	0.05	688	0.02	0.19
		(0.09)		(0.17)	(0.16)
Business analysis (0-6)	891	-0.00	685	0.14	0.28**
		(0.08)		(0.15)	(0.14)
Petty cash (M$)	799	2.98	613	2.90	-2.93
		(6.02)		(9.01)	(10.66)
Knows how to compute opp. cost	1,062	0.01	841	0.03	0.04
		(0.02)		(0.04)	(0.04)
Knows how to compute revenue	1,062	0.01	841	0.09**	-0.01
		(0.03)		(0.04)	(0.04)
Financing of inputs:					
Savings	869	0.02	670	0.01	0.04
		(0.02)		(0.04)	(0.03)
Bank loan	868	-0.03	669	-0.01	-0.02
		(0.02)		(0.04)	(0.04)
Family loan	869	-0.01	670	-0.08*	-0.08*
		(0.03)		(0.05)	(0.05)
Government funds	869	-0.04	670	-0.12**	-0.07
		(0.03)		(0.05)	(0.05)
Micro-credit funds	869	0.04	670	-0.01	-0.02
		(0.05)		(0.04)	(0.04)

Notes: Regressions control for strata, baseline (when available) and general individual and business characteristics. Standard errors robust to heteroscedasticity for technical assistance and clustered at course level for role model in parentheses. $*p < 0.1, **p < 0.05, ***p < 0.01$

Table 7. Interactions: Business Experience - Short Run

Variables	Role Model		Personalized Assistance	
	No Business	Old Bus.	No Business	Old Bus.
Socioeconomic and business:				
Income (M$) last month	108.639*	46.035	85.411	-24.091
	(62.301)	(59.963)	(78.314)	(56.663)
Income main occ. (M$) last month	137.228**	-53.084	-51.879	50.062
	(56.106)	(61.928)	(70.952)	(52.645)
Employed	0.059	0.006	-0.046	0.014
	(0.044)	(0.041)	(0.059)	(0.029)
Self employed	-0.050	0.047	0.042	-0.020
	(0.066)	(0.047)	(0.065)	(0.043)
Profits (M$)	16.539	198.871	54.537	-82.111
	(106.278)	(195.747)	(108.737)	(223.523)
Weekly hours worked at business	-5.065**	-3.444	1.156	1.120
	(2.526)	(3.138)	(2.565)	(1.973)
Number of employees last month	-0.225	-0.636	-0.445	-0.298
	(0.215)	(0.627)	(0.278)	(0.608)
Wagebill (M$) last month	-51.624	52.072	16.037	26.747
	(36.147)	(52.560)	(57.414)	(63.573)
Registered with tax authority	-0.216***	-0.104	0.001	0.016
	(0.056)	(0.064)	(0.068)	(0.041)
Knowledge and behaviors:				
Marketing actions (0-7)	0.030	0.119	0.019	-0.033
	(0.344)	(0.329)	(0.319)	(0.229)
Business analysis (0-6)	-0.027	-0.230	0.175	-0.041
	(0.269)	(0.217)	(0.248)	(0.172)
Book-keeping methods (0-6)	0.043	0.190	-0.389*	-0.074
	(0.167)	(0.219)	(0.212)	(0.178)
Petty cash (M$)	57.716*	-17.944	154.205***	3.726
	(29.292)	(25.169)	(56.312)	(20.760)
Knows how to compute opp. cost	-0.035	-0.162*	-0.041	0.079
	(0.090)	(0.084)	(0.114)	(0.076)
Knows how to compute revenue	-0.148*	0.045	-0.023	-0.021
	(0.080)	(0.056)	(0.074)	(0.045)
Score in exit exam (0-7)	0.008	-0.105	-0.038	-0.024
	(0.157)	(0.187)	(0.243)	(0.146)
Financing of inputs:				
N assets (0-11)	0.262	0.148	0.203	-0.050
	(0.226)	(0.291)	(0.257)	(0.191)
Desired sales growth (%)	38,485	1,272	-254	-166
	(34,947.568)	(1,219)	(2,398)	(110)
Savings	0.128	-0.065	-0.087	0.034
	(0.094)	(0.067)	(0.164)	(0.062)
Bank loan	0.071	0.031	-0.043	-0.035
	(0.066)	(0.077)	(0.158)	(0.070)
Family loan	-0.147	0.029	0.033	-0.113**
	(0.094)	(0.077)	(0.144)	(0.052)
Government funds	0.018	-0.003	-0.005	-0.013
	(0.025)	(0.033)	(0.033)	(0.030)
Micro-credit funds	0.063	0.021	0.065	-0.000
	(0.060)	(0.043)	(0.063)	(0.036)
Other sources	0.001	0.035	-0.001	0.017
	(0.029)	(0.027)	(0.048)	(0.019)
Applied for seed fund	-0.119	0.009	0.017	-0.037
	(0.077)	(0.096)	(0.085)	(0.071)

Notes: Regressions control for strata, baseline (when available) and general individual and business characteristics. Standard errors robust to heteroscedasticity for technical assistance and clustered at course level for role model in parentheses. $*p < 0.1, **p < 0.05, ***p < 0.01$

Table 8. Interactions: Business Experience - Long Run

Variables	Role Model		Personalized Assistance	
	No Business	Old Bus.	No Business	Old Bus.
Socioeconomic and business:				
Income per capita (M$)	-41.008**	-25.840	-46.055*	-20.375
	(17.356)	(23.588)	(25.791)	(26.217)
Has business	-0.015	-0.129*	0.106	0.158**
	(0.068)	(0.067)	(0.097)	(0.068)
Is in a different sector	0.119	-0.031	-0.154	0.051
	(0.129)	(0.098)	(0.201)	(0.076)
Operates from a different location	0.156	-0.023	0.328*	-0.133*
	(0.121)	(0.102)	(0.182)	(0.079)
Weekly hours worked at business	-5.884	-2.227	0.320	6.570*
	(3.747)	(5.071)	(4.586)	(3.841)
Number of workers (last month)	-0.158	-0.219	-0.046	0.160
	(0.138)	(0.153)	(0.137)	(0.126)
Wagebill (M$) last month	3.520	-15.173	-42.547	11.281
	(22.695)	(23.833)	(28.722)	(24.527)
Registered with tax authority	-0.121*	-0.127	-0.006	-0.061
	(0.061)	(0.084)	(0.077)	(0.070)
Profits (M$) last month	47.190	11.315	107.890	52.162
	(140.667)	(122.379)	(190.516)	(126.012)
Knowledge and behaviors:				
Marketing actions (0-7)	-0.176	-0.654*	-0.291	-0.070
	(0.373)	(0.360)	(0.525)	(0.250)
Business analysis (0-6)	0.039	-0.096	-0.362	0.358
	(0.368)	(0.321)	(0.509)	(0.295)
Petty cash (M$)	32.197	-12.192	-41.876	19.922
	(28.660)	(11.999)	(42.850)	(14.251)
Knows how to compute opp. cost	-0.087	-0.135*	0.028	-0.061
	(0.084)	(0.079)	(0.124)	(0.051)
Knows how to compute revenue	-0.033	0.024	-0.053	0.077
	(0.091)	(0.079)	(0.130)	(0.057)
Financing:				
Savings	-0.059	0.123	-0.185	0.126*
	(0.072)	(0.076)	(0.136)	(0.063)
Bank loan	-0.097	-0.092	-0.025	0.062
	(0.086)	(0.084)	(0.126)	(0.050)
Family loan	0.077	-0.036	0.104	0.018
	(0.120)	(0.097)	(0.159)	(0.086)
Government funds	0.048	0.165	-0.212	-0.001
	(0.139)	(0.101)	(0.176)	(0.086)
Micro-credit funds	0.037	0.055	0.134	0.068
	(0.093)	(0.103)	(0.151)	(0.088)

Notes: Regressions control for strata, baseline (when available) and general individual and business characteristics. Standard errors robust to heteroscedasticity for technical assistance and clustered at course level for role model in parentheses. $*p < 0.1, **p < 0.05, ***p < 0.01$

Table 9. Interactions: education

Variables	Role Model Education ≥ High School		Personalized Assistance Education ≥ High School	
	Short Run	Long Run	Short Run	Long Run
Socioeconomic and business:				
Income (M$) last month	15.313		-35.082	
	(61.737)		(104.583)	
Income main occ. (M$) last month	62.881		-17.975	
	(40.834)		(77.888)	
Income per capita (M$)		0.965		11.681
		(13.209)		(23.599)
Employed	0.044		0.062	
	(0.033)		(0.056)	
Self employed	-0.027		-0.036	
	(0.046)		(0.067)	
Has business		-0.072		0.185***
		(0.059)		(0.069)
Is in a different sector		0.226**		-0.313**
		(0.089)		(0.137)
Operates from a different location		0.119		-0.223*
		(0.080)		(0.112)
Profits (M$)	58.417	-77.288	-9.519	-11.024
	(80.065)	(139.335)	(94.164)	(62.416)
Weekly hours worked at business	0.964	-4.262	-3.554	7.487
	(2.712)	(3.860)	(3.448)	(5.581)
Number of employees last month	-0.235	-0.297	0.391	0.049
	(0.342)	(0.247)	(0.434)	(0.182)
Wagebill (M$) last month	28.226	-13.156	33.748	-4.477
	(41.019)	(36.741)	(52.836)	(22.669)
Registered with tax authority	-0.034	-0.050	0.091	0.198
	(0.046)	(0.070)	(0.060)	(0.119)
Knowledge and behaviors:				
Marketing actions (0-7)	-0.298	0.170	0.300	0.388
	(0.237)	(0.317)	(0.460)	(0.480)
Business analysis (0-6)	-0.188	0.005	0.415	0.357
	(0.170)	(0.283)	(0.303)	(0.329)
Book-keeping methods (0-6)	-0.219		0.311	
	(0.172)		(0.191)	
Petty cash (M$)	26.722	-25.612	40.557	13.971
	(27.454)	(17.376)	(48.794)	(26.729)
Knows how to compute opp. cost	-0.008	0.139*	-0.035	-0.087
	(0.074)	(0.078)	(0.118)	(0.112)
Knows how to compute revenue	-0.038	-0.025	-0.075	-0.054
	(0.072)	(0.078)	(0.124)	(0.161)
Score in exit exam (0-7)	-0.146		-0.099	
	(0.210)		(0.229)	
Investment decisions:				
N assets (0-11)	0.179		0.139	
	(0.254)		(0.409)	
Desired sales growth (%)	3,221		15,557	
	(5,531)		(17,344)	
Savings	-0.004	-0.021	-0.052	0.010
	(0.072)	(0.059)	(0.086)	(0.093)
Bank loan	-0.068	-0.062	0.054	0.055
	(0.050)	(0.053)	(0.093)	(0.112)
Family loan	-0.017	-0.108	-0.045	-0.165
	(0.049)	(0.070)	(0.101)	(0.106)
Government funds	0.028	-0.028	-0.011	0.203
	(0.020)	(0.079)	(0.027)	(0.156)
Micro-credit funds	-0.060	-0.072	0.037	0.024
	(0.038)	(0.084)	(0.067)	(0.106)
Applied for seed fund	-0.004		-0.118	
	(0.064)		(0.089)	

Notes: Regressions control for strata, baseline (when available) and general individual and business characteristics. Standard errors clustered at course level in parentheses. $*p < 0.1, **p < 0.05, ***p < 0.01$

Table 10. Interactions: Similarities with role model

Variables	Short-run			Long-run		
	Same Gender	Similar Age	Same Sector	Same Gender	Similar Age	Same Sector
Socioeconomic and business:						
Income (M$) last month	29.611	84.584	16.357			
	(34.311)	(84.177)	(35.712)			
Income main occ. (M$) last month	84.994**	122	46.733			
	(38.444)	(90.838)	(39.662)			
Income per capita (M$)				20.341**	17.777	38.498***
				(9.295)	(11.057)	(12.354)
Employed	0.001	-0.007	-0.011			
	(0.015)	(0.021)	(0.019)			
Self employed	0.022	0.059**	0.027			
	(0.019)	(0.028)	(0.032)			
Has a business				0.057**	0.102***	0.026
				(0.023)	(0.037)	(0.036)
Is in a different sector				0.051	0.034	0.009
				(0.043)	(0.064)	(0.050)
Operates from a different location				0.092***	0.106*	0.074
				(0.034)	(0.059)	(0.052)
Profits (M$)	60.947	174*	-21.718	86.568**	30.522	35.367
	(51.466)	(87.272)	(50.205)	(41.299)	(51.527)	(51.368)
Weekly hours worked at business	0.769	3.251*	1.294	1.950	3.478	-0.030
	(1.097)	(1.892)	(1.780)	(1.311)	(2.537)	(1.970)
Number of employees last month	0.204	-0.092	0.094	-0.053	-0.142	-0.050
	(0.167)	(0.149)	(0.187)	(0.065)	(0.093)	(0.088)
Wagebill (M$) last month	42.205*	23.172	-7.169	-17.564*	-25.970**	-12.722
	(24.737)	(19.751)	(19.300)	(9.663)	(11.813)	(13.218)
Registered with tax authority	-0.016	0.053	0.025	0.047*	0.145***	0.113**
	(0.024)	(0.043)	(0.040)	(0.026)	(0.040)	(0.044)
Knowledge and behaviors:						
Marketing actions (0-7)	0.091	0.462***	-0.058	0.172	0.258*	0.031
	(0.115)	(0.124)	(0.152)	(0.108)	(0.138)	(0.187)
Business analysis (0-6)	0.062	0.291**	0.043	0.062	0.169	0.085
	(0.105)	(0.143)	(0.154)	(0.100)	(0.131)	(0.152)
Book-keeping methods (0-6)	0.032	0.172*	-0.069			
	(0.070)	(0.096)	(0.096)			
Petty cash (M$)	14.477	38.279**	-7.481	6.576	19.596	23.416
	(8.704)	(16.154)	(16.139)	(8.493)	(20.747)	(18.252)
Knows how to compute opp. cost	-0.099**	-0.128**	-0.086*	0.053**	0.042	0.038
	(0.038)	(0.055)	(0.048)	(0.021)	(0.039)	(0.047)
Knows how to compute revenue	0.048*	0.051	0.064**	0.012	0.056	-0.006
	(0.027)	(0.035)	(0.029)	(0.035)	(0.056)	(0.051)
Score in exit exam (0-7)	0.132	0.076	0.221			
	(0.172)	(0.187)	(0.175)			
Investments decisions:						
N assets (0-11)	-0.305***	-0.305*	-0.561***			
	(0.094)	(0.153)	(0.130)			
Desired sales growth (%)	1,055	199	2,705			
	(989)	(479)	(2,529)			
Savings	-0.046	-0.043	-0.066	0.009	0.035	0.035
	(0.034)	(0.037)	(0.046)	(0.026)	(0.032)	(0.032)
Bank loan	-0.001	-0.013	-0.003	-0.033	-0.054	-0.036
	(0.018)	(0.032)	(0.035)	(0.027)	(0.050)	(0.041)
Family loan	-0.075**	-0.078**	0.012	-0.041	-0.028	0.007
	(0.031)	(0.036)	(0.041)	(0.035)	(0.047)	(0.061)
Government funds	0.025*	0.033*	0.030**	-0.039	-0.040	-0.006
	(0.013)	(0.018)	(0.012)	(0.037)	(0.051)	(0.046)
Micro-credit funds	0.019	0.021	-0.019	0.072	0.066	-0.058
	(0.028)	(0.036)	(0.029)	(0.060)	(0.066)	(0.070)
Applied for seed fund	0.070*	0.033	0.082*			
	(0.035)	(0.049)	(0.049)			

Notes: Regressions control for strata, baseline (when available) and general individual and business characteristics. Standard errors robust to heteroscedasticity for technical assistance and clustered at course level for role model in parentheses. $*p < 0.1, **p < 0.05, ***p < 0.01$

Table 11. Interactions: Role Model Sales

Variables	Role model income		Prob. of a bus. in follow-up	
	Short-run	Long-run	Short-run	Long-run
Socioeconomic and business:				
Income (M$) last month	40.875		17.196	
	(44.539)		(112)	
Income main occ. (M$) last month	88.141**		-8.909	
	(42.925)		(126)	
Income per capita (M$)		-9.061		108***
		(5.861)		(31.781)
Employed	-0.004		-0.052	
	(0.011)		(0.058)	
Self employed	-0.006		0.056	
	(0.012)		(0.099)	
Has a business		0.014	-0.290***	
		(0.011)	(0.094)	
Is in a different sector		-0.010	-0.371	
		(0.029)	(0.229)	
Operates from a different location		0.043*	0.061	
		(0.026)	(0.206)	
Profits (M$)	104**	-19.338	-23.296	77.689
	(41.374)	(36.043)	(310)	(265)
Weekly hours worked at business	-0.154	1.237	0.460	-0.704
	(0.833)	(0.784)	(5.522)	(5.313)
Number of employees last month	-0.024	0.015	0.318	0.413*
	(0.061)	(0.056)	(0.390)	(0.233)
Wagebill (M$) last month	26.963***	-10.184	2.534	11.048
	(8.852)	(9.729)	(50.145)	(35.256)
Registered with tax authority	0.001	0.011	0.118	0.054
	(0.016)	(0.020)	(0.095)	(0.111)
Knowledge and behaviors:				
Marketing actions (0-7)	0.080	0.075	0.219	0.063
	(0.067)	(0.092)	(0.400)	(0.700)
Business analysis (0-6)	-0.138**	0.098	-0.077	-0.120
	(0.065)	(0.074)	(0.413)	(0.553)
Book-keeping methods (0-6)	0.021		0.128	
	(0.044)		(0.280)	
Petty cash (M$)	1.846	12.820*	-99.328*	-20.087
	(4.674)	(6.722)	(57.661)	(50.037)
Knows how to compute opp. cost	-0.022	0.027	0.062	0.051
	(0.028)	(0.018)	(0.134)	(0.130)
Knows how to compute revenue	-0.026	0.011	0.056	-0.135
	(0.018)	(0.027)	(0.121)	(0.114)
Score in exit exam (0-7)	-0.175		-0.344	
	(0.130)		(0.366)	
Investment decisions:				
N assets (0-11)	0.036		-0.115	
	(0.076)		(0.505)	
Desired sales growth (%)	731*		-88,264	
	(414)		(78,048)	
Savings	0.016	0.009	-0.182	-0.087
	(0.022)	(0.015)	(0.150)	(0.130)
Bank loan	0.000	-0.032**	-0.173	0.086
	(0.016)	(0.014)	(0.115)	(0.155)
Family loan	0.060***	0.042***	0.310**	-0.087
	(0.020)	(0.015)	(0.144)	(0.182)
Government funds	0.018***	0.074***	0.003	-0.155
	(0.006)	(0.024)	(0.037)	(0.215)
Micro-credit funds	-0.028	-0.029	-0.147	-0.119
	(0.021)	(0.043)	(0.107)	(0.192)
Applied for seed fund	0.059**		0.265**	
	(0.029)		(0.110)	

Notes: Regressions control for strata, baseline (when available) and general individual and business characteristics. Standard errors robust to heteroscedasticity for technical assistance and clustered at course level for role model in parentheses. $*p < 0.1, **p < 0.05, ***p < 0.01$

A Additional tables and figures

Table A.1. Balance

	Role Model			Technical Assistance			
		Mean	Diff		Mean	Diff	
Variable	N	Control	T-C	N	Control	T_{AC}-C	T_{AB}-C
General characteristics:							
Women	1,405	0.91	0.02	1,136	0.93	0.03	0.00
Age	1,374	45	0.42	1,112	45	-0.97	-0.61
Less than HSD	1,521	0.21	-0.03	1,235	0.19	0.01	0.04
High school diploma	1,521	0.50	-0.01	1,235	0.51	-0.02	-0.04
Technical or University	1,521	0.29	0.03	1,235	0.30	0.01	0.00
Socioeconomic:							
Income (M$) last month	1,093	374	31	903	352	40	30
Employed	1,260	0.07	-0.02	1,039	0.07	-0.01	-0.00
Self employed	1,260	0.82	-0.01	1,039	0.81	0.01	-0.02
Banking:							
Has a bank account	1,237	0.63	0.06**	1,020	0.63	0.02	0.01
Has asked bank for credit	1,225	0.39	0.03	1,011	0.41	0.00	-0.03
Has obtained credit	1,243	0.43	0.06**	1,023	0.45	0.02	0.00
Business:							
Sales (M$) last month	921	471	-36	744	451	24	-147
Costs (M$) last month	792	328	-17	642	360	-44	-144
Profits (M$)	761	180	-17	614	131	74	13
Weekly hours worked at business	1,024	34	1.13	834	32	0.70	2.06
Number of employees last month	576	0.61	0.05	484	0.72	-0.03	-0.31
Wage bill (M$) last month	522	93	16	440	132	-13	-99
Registered with tax authority	1,108	0.34	-0.04*	905	0.33	-0.09**	-0.05
Techniques:							
Marketing actions (0-7)	1,069	2.96	0.14	875	2.92	0.11	0.19
Business analysis (0-6)	1,128	2.72	0.15	922	2.69	0.10	0.04
Book-keeping methods (0-6)	966	0.74	0.10	777	0.83	-0.11	-0.12
Petty cash (M$)	813	160	-42	664	119	30	52
Knows how to compute opp. cost	1,281	2.36	0.00	980	2.35	-0.01	0.11
Knows how to compute revenue	1,246	0.55	0.04	958	0.58	0.01	-0.05
Score on entrance exam (0-7)	1,065	5.17	0.03	836	5.32	-0.19	-0.02
Purchases abd financing							
N assets (0-11)	1,582	2.32	0.04	1,132	2.65	-0.03	0.12
Savings	1,017	0.66	0.04	828	0.67	0.01	-0.02
Bank loan	1,017	0.22	0.02	828	0.23	-0.04	-0.01
Family loan	1,017	0.24	0.01	828	0.18	0.09**	0.11***
Government funds	1,017	0.10	-0.02	828	0.12	-0.03	-0.05*
Micro-credit funds	1,017	0.01	0.01*	828	0.00	0.01*	0.01*
Other sources	1,017	0.08	0.03	828	0.13	-0.06**	-0.04

Notes: Regressions control for strata and general individual and business characteristics (except for that group of variables). Standard errors robust to heteroscedasticity for technical assistance and clustered at course level for role model in parentheses. $*p < 0.1, **p < 0.05, ***p < 0.01$

Table A.2. Attrition

	SEG0	SEG1	SEG0	SEG1
Role Model	0.012	0.022		
	(0.032)	(0.023)		
TA individual at class			0.016	0.050
			(0.023)	(0.031)
TA individual at business			0.023	0.022
			(0.023)	(0.031)
Constant	0.790***	0.638***	0.828***	0.665***
	(0.026)	(0.017)	(0.016)	(0.022)
N	1,810	1,810	1,343	1,343

Notes: Regressions control for strata. Standard errors robust to heteroscedasticity for technical assistance and clustered at course level for role model in parentheses. $*p < 0.1, **p < 0.05, ***p < 0.01$

Table A.3. Difference in Baseline Characteristics of Those Answering Midline Survey and Those Attriting, by Assignment to Treatment

	Role Model		Technical Assistance		
		Diff		Diff	
Variable	N	T-C	N	T1-C	T2-C
General characteristics:					
Women	1,403	0.02	1,136	0.02	-0.00
Age	1,372	0.43	1,112	-1.50*	-0.87
Less than high school	1,518	-0.04*	1,235	0.01	0.05*
High school diploma	1,518	-0.00	1,235	-0.03	-0.05
Technical or University	1,518	0.04	1,235	0.02	0.00
Socioeconomic:					
Income (M$) last month	1,090	30	903	31	-3.74
Employed	1,256	-0.02*	1,039	-0.01	-0.01
Self employed	1,256	-0.01	1,039	0.02	-0.02
Banking:					
Has a bank account	1,233	0.07**	1,020	0.02	-0.00
Has asked bank for credit	1,221	0.02	1,011	-0.01	-0.04
Has obtained credit	1,239	0.04	1,023	0.02	-0.01
Business:					
Sales (M$) last month	919	-87	744	53	-115
Costs (M$) last month	790	-86	642	3.24	-90
Profits (M$)	759	-6.09	614	40	-20
Weekly hours worked at business	1,021	0.52	834	0.32	0.65
Number of employees last month	573	-0.01	484	-0.09	-0.26*
Wage bill (M$) last month	521	-8.81	440	-11	-74*
Registered with tax authority	1,105	-0.04*	905	-0.10**	-0.08**
Techniques:					
Marketing actions (0-7)	1,066	0.15	875	0.08	0.16
Business analysis (0-6)	1,125	0.13	922	0.11	0.02
Book-keeping methods (0-6)	963	0.06	777	-0.13	-0.14
Petty cash (M$)	810	-51	664	34	49
Knows how to compute opp. cost	1,281	-0.00	980	-0.05	0.09
Knows how to compute revenue	1,246	0.02	958	-0.00	-0.06
Score on entrance exam (0-7)	1,062	-0.03	836	-0.26*	-0.04
Purchases and financing					
N assets (0-11)	1,579	0.05	1,131	-0.24	-0.09
Savings	1,014	0.05*	828	0.02	-0.03
Bank loan	1,014	0.01	828	-0.02	-0.00
Family loan	1,014	0.01	828	0.08**	0.11***
Government funds	1,014	-0.01	828	-0.02	-0.05*
Micro-credit funds	1,014	0.01**	828	0.01*	0.02*
Other sources	1,014	0.02	828	-0.06*	-0.04

Notes: Regressions control for strata and general individual and business characteristics (except for that group of variables). Standard errors robust to heteroscedasticity for technical assistance and clustered at course level for role model in parentheses. $*p < 0.1, **p < 0.05, ***p < 0.01$

Table A.4. Difference in Baseline Characteristics of Those Answering Endline Survey and Those Attriting, by Assignment to Treatment

	Role Model		Technical Assistance		
		Diff		Diff	
Variable	N	T-C	N	T1-C	T2-C
General characteristics:					
Women	1,403	0.02	1,136	0.05**	0.00
Age	1,372	-0.13	1,112	-0.78	-0.16
Less than high school	1,518	0.00	1,235	0.02	0.04
High school diploma	1,518	-0.04*	1,235	-0.03	-0.04
Technical or University	1,518	0.04	1,235	0.00	-0.00
Socioeconomic:					
Income (M$) last month	1,090	24	903	37	-1.34
Employed	1,256	-0.03*	1,039	-0.00	-0.01
Self employed	1,256	-0.01	1,039	0.01	-0.01
Banking:					
Has a bank account	1,233	0.06**	1,020	0.01	-0.00
Has asked bank for credit	1,221	0.01	1,011	-0.01	-0.05
Has obtained credit	1,239	0.04	1,023	0.04	0.04
Business:					
Sales (M$) last month	919	-88	744	44	-214**
Costs (M$) last month	790	-89	642	47	-129
Profits (M$)	759	-18	614	46	-71
Weekly hours worked at business	1,021	1.48	834	0.50	-0.80
Number of employees last month	573	0.01	484	0.07	-0.20
Wage bill (M$) last month	521	-8.39	440	18	-85*
Registered with tax authority	1,105	-0.05*	905	-0.16***	-0.13***
Techniques:					
Marketing actions (0-7)	1,066	0.29**	875	0.02	0.13
Business analysis (0-6)	1,125	0.08	922	0.08	-0.03
Book-keeping methods (0-6)	963	0.05	777	-0.22*	-0.22*
Petty cash (M$)	810	-58	664	19	58
Knows how to compute opp. cost	1,281	0.07	980	-0.02	0.03
Knows how to compute revenue	1,246	0.06*	958	-0.01	-0.03
Score on entrance exam (0-7)	1,062	0.08	836	-0.37**	-0.12
Purchases and financing					
N assets (0-11)	1,579	0.04	1,131	-0.11	-0.01
Savings	1,014	0.07*	828	0.03	-0.01
Bank loan	1,014	0.01	828	-0.05	-0.03
Family loan	1,014	-0.02	828	0.11**	0.09**
Government funds	1,014	-0.01	828	0.01	-0.03
Micro-credit funds	1,014	0.01	828	0.01*	0.01
Other sources	1,014	0.03	828	-0.04	-0.04

Notes: Regressions control for strata and general individual and business characteristics (except for that group of variables). Standard errors robust to heteroscedasticity for technical assistance and clustered at course level for role model in parentheses. $*p < 0.1, **p < 0.05, ***p < 0.01$

Table A.5. Compliance with Random Assignment

	Role model		Technical Assistance					
	N	Compliance	N_{AG}	Compliance	N_{AC}	Compliance	N_{AB}	Compliance
Cohort I (Beca I)	204	0.79	128	0.56	138	0.64	138	0.68
Cohort II (Bono)	124	0.66	.	.	.	.	.	.
Cohort III (Beca II)	181	0.84	121	0.74	129	0.76	132	0.81
Cohort IV (Beca III)	378	0.84	176	0.70	192	0.74	193	0.80
Total	887	0.81	424	0.66	459	0.71	461	0.77

Note: Cohort II (Bono) is an advanced level so did not receive technical assistance.

Table A.6. Evaluation of Role Model by participants

The Role Model...	N	Not At All	Little	Enough	A Lot
Motivated to be persistent (1-4)	563	0.02	0.03	0.36	0.58
Communicated the value of being an entrepreneur (1-4)	560	0.03	0.05	0.42	0.51
Motivated to apply things learnt on the course (1-4)	571	0.03	0.05	0.43	0.49
Was close to people (1-4)	565	0.02	0.05	0.53	0.40
Gave useful information (1-4)	549	0.07	0.12	0.47	0.34

Table A.7. Impact on Evaluation of Technical Assistance

Variables	N	β_{AC}	β_{AB}
Helped me to identify strengths and weaknesses	1,004	0.11	0.05
		(0.07)	(0.07)
Helped me to identify possible solutions	1,009	0.05	0.02
		(0.06)	(0.06)
Helped me to introduce changes in business management	985	0.02	-0.02
		(0.07)	(0.07)
Was useful	1,007	0.07	-0.00
		(0.07)	(0.07)
Length was insufficient	1,010	-0.00	0.03
		(0.02)	(0.02)
Length was adecuate	1,010	-0.02	-0.05*
		(0.03)	(0.03)
Length was excesive	1,010	0.02	0.02
		(0.02)	(0.02)

Notes: Regressions control for strata and general individual and business characteristics. Standard errors robust to heteroscedasticity in parenthesis.