Are microentrepreneurs constrained by their lack of knowledge or motivation? Lessons from a randomized experiment in Chile[*]

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Abstract

We implement a randomized experiment in Chile with microentrepreneurs participating in a training program to explore the constraints faced by micro firms. We first offered to a random subset of the students the visit of a successful ex-student to act as a role model. We then randomly selected participants into receiving personalized versus group "consulting sessions". We find that the role model and personalized assistance appear to increase household income one year after the intervention, mostly through increased business participation and business income. While returns are similar between the two types of intervention, the role model is much less costly and highly cost-effective. We find limited indication that the role model improved knowledge or business practices but rather seem to have increased the motivation of participants. The channel through which personalized consulting operates is more difficult to identify. However, there is some indication that the two types of intervention benefited different types of microentrepreneurs, those with less previous experience being particularly helped by the role model while those more experienced and educated benefited more from personalized consulting. Role model success and similarity with the participants are also relevant.

PRELIMINARY, PLEASE DO NOT CITE

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1 Introduction

Microfirms' are an important player in the labor market of any developing country, particularly for women. However, most microfirms have poor performances: they do not grow, never hire workers outside of family members and have low productivity. Various explanations have been suggested for this, in particular a lack of access to credit and a lack of knowledge. However, a number of program evaluations have shown limited results for interventions aimed at solving these problems. However, one can also determine, from observational studies of microfirms in developing countries that many of these firms also are not a high priority for their owner: they often own more than one business, combine entrepreneurship with household chores, etc. We thus attempt in this paper 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 whose focus is not primarily on in class learning. To this end we evaluate the impact of including a role model and/or including an intensive personalized consulting service in addressing whatever barriers the microentrepreneurs may face. We do this using a randomized control trial in the context of a microentrepreneur training program in Chile.

The context of Chile is an interesting one since the country has experienced a very low rate of female labor force participation and a gender gap of 38% in unemployment (3.4 percentage points). In fact, Chile is the country with the highest gender gap in labor participation in Latin America, and the second highest in the OECD (Mizala et al. (1999); Benvin and Perticará (2007)). In recent years, consciousness about these problems has increased, so the public policy officials and other institutions in Chile are promoting programs and policies to reduce inequality and increase female labor participation (OECD, 2009). Many programs to help women start their own business have been proposed. Moreover, as micro-entrepreneurship allows part-time dedication and flexible schedules, in can be a particularly attractive alternative for a lot of women, who commonly combine labor participation with family tasks at home and find themselves negatively affected by the rigid schedules of traditional work. The training program we used for our experiments is implemented by Simón de Cirene, a Chilean non-profit organization whose aim is to improve the welfare of microentrepreneurs through financial and managerial training.

The first element we 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, who present their testimonies to the new participants. This is comparable with cases seen in education, where evidence shows that they increase effort, performance on standardized tests and 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 of their business. However, the role models' eventual impact may come from other channels such as motivation, drive, 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 contrast personalized with group based technical assistance. Personalized assistance has been recognized in a number of papers (Karlan and Valdivia, 2011; Bruhn, Karlan and Shoar, 2013) as potentially increasing significantly the value-added of training. However, it is also one of the costliest forms of interventions implemented. Specifically, in our case, offering personalized technical assistance, whether in the business or in the classroom, is almost ten times as expensive as offering the technical assistance in group. The costs related to the personalized sessions are different in both cases, however, since the visit to the business involves particularly high travel cost of the monitor while the one-on-one session in the classroom is 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 assistance (when given individually in class, individually in the location of the business) to receiving it in groups in class. With the purpose of evaluating the cost-effectiveness of each of these strategies, this study investigates if the place and way of the delivery affect 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 the most rigorous method for evaluating social programs (Duflo et al. (2008)). The compliance of assignment treatments was relatively high and pre-characteristics of participants are 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. In these, we 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 check whether eventual impacts depend on increased knowledge, we also measure their attendance to class and their learning through their performances on evaluations performed by ourselves (performance on exams performed by the organization are not yet available).

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 exit exam score of the student and also their probability of obtaining a loan. The visit of a role model, on the other hand, increases by 3 percent the fraction of individuals who are self-employed, increases the income they gain in their main occupation, decreases the number of business assets they purchased. While we find no evidence that the role model improves the learning of participants (although it does increase class

attendance), we find that they hold more petty cash, they change the source of financing of their inputs, are more likely to apply to seed funds and have a higher level of desired sales for the future, suggesting that the role model may have particularly increases the motivation of participants. This is confirmed by feedback received by 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. 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, formalization.

We furthermore explore heterogeneity in 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 channel of action. Finally, we find evidence that more successful role models or having one who is more similar to the participant in terms of gender and age increases the potency of the intervention, suggesting that motivation is a likely channel of action for that intervention.

We think that this is a useful input for the discussion on micro-firms 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, 2012, for a financial training program in Mexico), while intensive programs seems to have some significant effects (see 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 in this literature, that complementing in-class sessions with follow-up visits and technical 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 (2012).

In the case of female entrepreneurs, the evidence is even more nuanced. Part of the literature shows that males have stronger response to some training programs offered to both male and women (see Berge et al 2012 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 (2011) for a training program in Peru. This study also shows that the positive impacts are concentrated in the larger business, suggesting that either those managing larger business 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)). In fact, 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), contents and mechanisms for imparting those courses provide effectiveness. Moreover, the cost of the programs varies greatly (see Sonobe et al 2012) so a better understanding of the components and mechanisms that explain some of the positive results could help implementing agencies, both private and publicly funded, to increase their cost effectiveness.

This study contributes to the literature and to program design by presenting rigorous evidence about which teaching methods are more effective for the technical assistance portion of training courses for micro-entrepreneurs. We also innovate by introducing into the business training literature 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). Why could role models positively impact micro-entrepreneurs? Wilson (1987) 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 a minority 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 (2004) argues that there is a failure of aspirations that generate poverty traps and thus that successful experience from individuals of a similar background will impact the decisions because only those will make individuals 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 their 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 concernsof 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, a teacher like me may be able to mentor students in a classroom (Fairlie et. al, 2015; Hoffmann and Oreopoulos, 2009). Overall, thus, 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 success of training and the ability of it to have a real impact over micro-entrepreneurs, it will be possible to guide the design of the training.

This rest of the paper is organized as followed. 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 the use of role models and 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 in the managing and handling of 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 evaluated 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 12 to 14 4-hour sessions.

Course participation is free and provides financing for out of pocket expenses in transportation (Ch\$ 3,000 or US\$ 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 business degree professional, who has experience working with companies, and accompanies the participants through the whole process. There is also a teaching assistant, usually a business degree senior student, who is responsible for the technical assistance.

While the basic program is limited to the series of classes, the evaluation measures two additional components. The first one consists in 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 our 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 the fact that they are more involved in the manufacturing of goods rather than in commerce or services.

The other intervention we explore is the way of delivering technical assistance to the participants. In these technical assistance session 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 that participants miss the technical assistance session, when a participant does not show to an agreed meeting, the teaching assistant makes a second and third attempt to set a 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 and individually makes the assistance more effective 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 relate closely.

3   Methodology

3.1   Empirical strategy

To evaluate these two different components of the 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 1,705 participants. We first randomly assign half of the courses (34 groups) to receive a session of 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 0.267 standard deviations, something that approximates our ex-post calculations, although for some variables, we can identify something as small as 0.17 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 allocate one third of the participants to group assistance, other third to individual assistance and the last third to individual assistance on location. This

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[1]Assuming a power of 80%, an ICC of 0.05, an attrition rate of 10%, a compliance rate of 95% and a correlation between baseline and follow-up of 0.5.

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 1,371 participants divided in three equal groups who receive 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 0.206 standard deviations. [2] Our updated calculations suggest that our power may be smaller than this, closer to 0.30.

We use four cohorts of participants to achieve our desired sample size. These were in classes starting from March 2013 to March 2014 and thus surveyed by phone between April 2014 and May 2015. We include fixed effects for cohort (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 assignment. The specification of the regression is the following:

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

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 and education 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, we will here 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 perfect response rate in our baseline and that this response rate varies from question to question. Thus, when we will control for baseline response Y_{it-1}, we will include all observations for which the end-line survey was answered but include a dummy if the individual did not respond the question in the baseline. Using only individuals who provided an answer to

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[2]Assuming a power of 80%, an ICC of 0.05, attrition rate of 10% and a compliance rate with the treatment assigned of 90%

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 includes four mathematic questions to capture the analytic abilities of the participant 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 are provided, a second baseline survey was conducted (LB1). The objective was to characterize the households 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, right after the end of the course, about the participants in terms of 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 instrument was correctly carried out and answered, we prepared detailed instructions with steps that the teachers should follow and the protocols of the application 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 uses administrative data about the participants and the classes, all collected by Simón de Cirene as part of their internal procedures for attendance. This data includes the results of two math tests given during the course, attendance and application forms, which include information about history, business performance of their microenterprise and basic demographic information. Finally, the teachers complete a form with process indicators with information about the quality of the role model session, characteristics of the teacher giving the technical assistance and compliance of the treatments assigned. All this information was used in

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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 table 2 we present the characteristics of the participants before the class begins. We can see that women represent 92% of the participants and average age is 45 years. Around 20 percent of participants have not completed high school, 50 percent have a high school degree and the remaining 30 percent has some tertiary (mostly technical) education. Average household income in the last month is CLP$390,000 (US$750). This income level is similar to the per capita income of the first quintile of autonomous income according to the CASEN 2011 poll, 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 the income 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 manegerial and financial techniques; 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 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 3 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), their employment status. We also measured whether they had a bank account, whether they had asked a bank for credit and whether they had obtained credit. We also 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 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 various indicators. The number of marketing actions taken is simply the sum of the number of marketing actions they answered they actually undertook. These include: visiting competitors to check prices, to check products, asking clients if they would like new products, asking suppliers if there are new products selling well on the market, asking ex-customers to understand why they stopped buying, making special offers and making publicity. Thus, this variable takes values between 0 and 7. Then we measure the number of financial analyses they undertake. 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 is 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 book-keeping documents. We measured how much petty cash they keep at hand for their business to measure their liquidity. We also ask 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.[3] 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 in the main occupation, we ask whether the individual provides the household main income source. We measure whether the individual has changed sectors or locations. We also measure the variance in sales in last year by asking the micro-entrepreneur to rank each trimester as bad, good or very good, which we translate into a 1, 2 or 3 respectively. We 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

Table 2 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 the number of outcomes presented. Furthermore, we will 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 could not hold: the participant may abandon the course before the role model session or the technical assistance

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[3]3 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.

occurs, or the corresponding technical assistance not be received by the participant.

Table 4 shows the level of compliance of the random assignment for the role model and for the technical assistance. On average, 85.7 percent of the participants assigned to role model receive 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 accomplishment 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 (67 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.

4   Results

Having shown that our randomization was performed adequately and that balancedness 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 than that of the personalized assistance, making it more likely the identification of differences in the short run within our role-model intervention than the personalized assistance one.

Table 5 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 to present had much higher incomes from the main occupation in the last month than those who did not. However, this did not translate into higher incomes overall, suggesting that it may capture a shift in the time devoted to the micro-firm. We find that the fraction who was self-employed was also 3 percent higher in the group assigned to the role model than those who were not. This is not observed in any of the two forms of personalized assistance. The only positive impact was on credit access for the assistance provided in class. The health of the business appear to have been relatively unaffected by the intervention but those visited by the role model increased their size, which led them to increase sales, costs, profits and wagebill (only costs and wagebill significantly).

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What could explain the changes generated by the role model? We first look at whether the role model changed the participation to the training. As can be seen from Figure 1, we find some weak evidence that individuals who were in a group with the visit of the role model 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. No such impact was found for the personalized assistance.

We then look for changes in management practices as shown in Table 6. We find no strong evidence that the role model is acting through increased knowledge. We find only that the amount of petty cash in the business increased for those visited b the role model than those who were not. However, groups visited by the role model actually answered 10 percent more incorrectly our question regarding opportunity cost. Personalized assistance, on the other hand, seem to increase the score of individuals on the exit exam although only significantly so for the one provided in class.

We then look at investment behavior and find strong and significant changes there for those assigned to receive the visit of the role model compared to those who were not. Reliance on family loan is reduced while 1 percent more of them used government funds and 2 percent more other sources in comparison to those not assigned to the role model. This switch in sources of funding also seem to accompany a change in what the investment is for as the number of business assets purchased in the last 3 months significantly decreased for those assigned to the role model. Finally, these individuals seem 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 400 larger. All this suggests that the role model may be acting through another margin than increased knowledge. We find limited impact of the personalized assistance on any of our behavioral proxies.

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. We show the detail of their responses in Table 7. According to the reports from the participants, the role model particularly motivated them to be persistent and communicated the value of being an entrepreneur. On the other hand, respondents seem to think that the role model was not so useful at providing useful information and was not 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 Table 8 where we find no evidence that offering technical assistance in a personalized format improves the perception of benefits from the micro-entrepreneurs.

4.2 Long run

Having found significant impact of the role model in the short-run and 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 the training. Table 9 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 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 because of 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 4-5 percent larger in the treatments than in the control groups, although this is only significantly different than zero for the role model.

The fact that this increase in household income seems to stem from better businesses is supported by the business outcomes that are next presented in that same table. For individuals who received individualized assistance in their business, there was an 11 percent higher chance of them having switched sectors since the baseline 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 formalizing their location. Being assigned to the role model also increases significantly one's probability of being registered with the tax authority one year later. We find no effect on the hiring front but do find evidence that sales are increased (significantly so for the assistance in the business location) and that profits are also improved (although only significantly for the role model). We find no evidence that credit and banking were strongly altered by our interventions.

We then turn to see if this long-term improvements reflect better business practices. This is presented in Table ??. 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 participants did not operate through better learning in the class, at least in the things that we are able to measure. The personalized assistance, on the other hand, appear to have improved the number of business analyses done when given in the business and improved the capacity 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 did we introduce more qualitative type 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 one year after the beginning of the program. We now explore whether individuals with some characteristics responded more or less to the interventions.

We first start, in Table 11, by looking at whether the impacts are different by the degree of experience in business the micro-entrepreneur had at the beginning of the class. In the first three columns, we find that the role model generated an increase in the income from the main occupation only significatively for individuals who did not have a business before the class began. However, this does not operate through an increase in entrepreneurship since the only group for which the role model increased the proportion that were self-employed in the short-run are those who had a well established business before hand. For those without a previous business, we even observe that being assigned to the role model decreases the hours devoted to the business. It also significantly reduces the reliance on family loans, suggesting that the role model may have disincentivized some individuals who did not previously have a business to launch themselves very soon into entrepreneurship. The motivating effect on desired sales is only significant for those who had young businesses but is still very large for those with more established ones. The lack of impact through better knowledge seems to be independent on the business experience of the entrepreneurs. This continues in the long-run as can be seen in the first three columns of Table 12 where the only groups for which significant impacts can be observed are for those who had existing businesses before the class. Gains in income, business survival, dedication to the business, formalization, management practices, etc are also all largest 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.

Our more muted results for the personalized assistance continue to be found once we interact having been assigned to receiving individualized versus group assistance with experience in business, as can be seen in the last three columns of Table 11 and Table 12. In all the tables, we here collapse in one single treatment being assigned to personalized versus group assistance. We see that, if anything, the the benefits of the personalized attention accrued in the long-run to those with a relatively well established business although the gain in income per capita is largest for those with a younger business (the difference is not significant however). Furthermore, only individuals without a previous business increased their business ownership in the long-run while personalized assistance may have helped those with young businesses take the decision to end their endeavour, leading to higher incomes. Thus, overall, we find that the role model may be a better tool for those with less

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developed entrepreneurship who particularly 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, we find limited evidence that the role model played a radically different role for those without a high school diploma from those with one. The decrease in assets is largest for those without but the decrease in the reliance on family loan and the increase in desired sale assets is largest for those with a high school diploma. In the longer-run, we find more statistically significant coefficient for individuals who have a high school diploma but there is very limited evidence that those without such a level of education would have not obtained very similar benefits, simply that they are noisier for that group. For the consulting services, we find that the increased in knowledge is concentrated among those with most education in the short-run. In the long-run, this translates into those with at least a high-school education having a larger impact of personalized attention on their income per capita and their business ownership. However, those without high school are more likely to operate in a different sector and a different location when assigned to personalized assistance. Again, the gains in business practices 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 in themselves influenced the impact it had on participants. First, in Table 16, we explore whether having characteristics in common with the role model influenced the impact the visit had. First, we contrast those who are from the same gender as the role model, then look at those who have a similar age as the role model and finally, we also measure those individuals who were from the same sector as the role model. In this case, 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 loan 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, of having larger profits, of working more hours in their business, of decreasing more strongly the purchase of assets and decreasing the 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 participants. On the other hand, the results for those sharing a given sector with the role model are less clear and more noisy. The lack of positive impact on management practices in aggregate appears to mask some more positive impacts for

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those sharing the same 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 table, we repeat the 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 to the visitor 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 than those who shared a sector with the role model may have benefited more in the longer-run.

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 ??. We find that in the short-run, richer 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 who faced a richer role model experienced lower gains in income in the long run and were less likely to acquire credit. On the other hand, they were more likely to spend more hours on their business, keep more petty cash and have a better idea of how to compute opportunity costs. 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.

5   Conclusions

We here document 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 improve similarly and significantly incomes nine months to one year after the intervention. However, the role model appears to play mostly a role by 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 had already 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 a similar impact, 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 than credit and knowl-

edge, which have been the focus of much 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 suggesting that one size may not fit all.

It is thus interesting to think whether we should be thinking of tailoring micro-entrepreneurship training to different types of students. Our results suggest that this may be an avenue to make the training more effective or at least to target some specific interventions only to a sub-group of the participants. Further research is needed on this.

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6   Tables and figures

Figure 1: Difference in class attendance in groups with and without role models
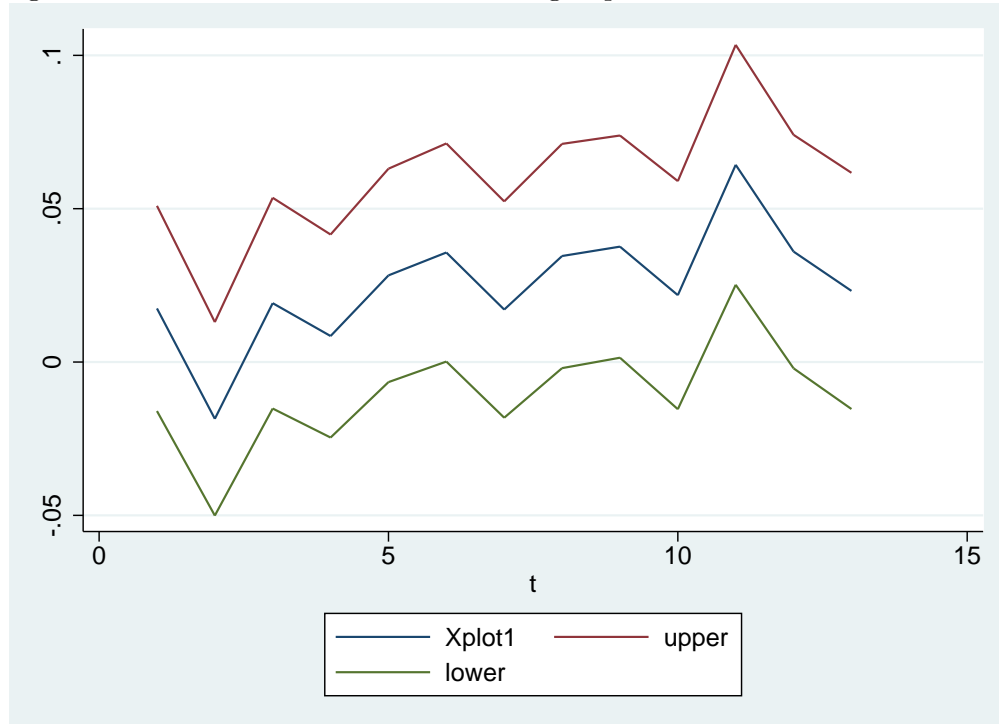
Table 1: Role Model Characteristics

Variable	N	Mean	Min	Max
General:				
Women	707	0.93	0	1
Age	631	48	26	63
Income	528	1,998,439	150,000	16,000,000
Presentation length (minutes)	707	43	20	60
Sector:				
Manufacturing	710	0.64	0	1
Services	710	0.28	0	1
Stores	710	0.04	0	1
Other	710	0.04	0	1

Table 2: Balance

Variable	Role Model			Technical Assistance			
	N	Mean Control	Diff T-C	N	Mean Control	Diff T1-C	Diff T2-C
General characteristics:							
Women	1,402	0.91	0.01	1,138	0.93	0.03	0.00
Age	1,373	45	0.52	1,114	45	-1.05	-0.56
Less than HSD	1,518	0.21	-0.03	1,237	0.19	0.00	0.04
High school diploma	1,518	0.50	-0.01	1,237	0.51	-0.02	-0.04
Technichal or University	1,518	0.29	0.03	1,237	0.30	0.01	0.00
Socioeconomic:							
Income ($) last month	1,093	374,011	39,432	905	352,243	41,874	29,261
Employed	1,260	0.07	-0.02	1,042	0.07	-0.01	-0.00
Self employed	1,260	0.82	-0.01	1,042	0.81	0.01	-0.02
Banking:							
Has bank account	1,237	0.63	0.05**	1,023	0.63	0.02	0.02
Has asked bank for credit	1,225	0.39	0.03	1,014	0.41	0.00	-0.04
Has obtained credit	1,243	0.43	0.07**	1,026	0.45	0.02	-0.00
Business:							
Sales ($) last month	921	471,116	4,562	745	451,658	24,622	-148,116
Costs ($) last month	792	327,949	37,546	643	361,160	-45,591	-145,389
Profits	761	180,435	-8,086	615	130,708	75,947	13,231
Weekly hours worked at business	1,024	34	1.37	836	32	0.78	1.94
Number of employees last month	576	0.61	0.04	486	0.72	-0.05	-0.35
Wagebill ($) last month	522	92,740	11,191	441	131,891	-13,869	-100,106
Registered with tax authority	1,108	0.34	-0.03	907	0.33	-0.09**	-0.05
Techniques:							
Marketing actions (0-7)	1,069	2.96	0.18*	877	2.91	0.13	0.18
Business analysis (0-6)	1,128	2.72	0.18*	924	2.69	0.11	0.03
Book-keeping methods (0-6)	966	0.74	0.12**	779	0.84	-0.10	-0.13
Quantity of $ in petty cash	813	160,245	-37,161	666	119,695	29,182	51,081
Analytical abilities (0-4)	1,281	2.36	0.00	980	2.34	-0.01	0.10
Knows how to compute revenue	1,246	0.55	0.03	958	0.58	0.01	-0.05
Score on entrance exam (0-7)	1,065	5.17	0.02	838	5.32	-0.17	-0.04
Purchases and financing							
N assets (0-11)	1,480	2.46	0.11	1,134	2.63	-0.00	0.15
Savings	1,020	0.66	0.04	833	0.67	0.01	-0.01
Bank loan	1,020	0.22	0.03	833	0.23	-0.03	-0.02
Family loan	1,020	0.24	0.01	833	0.18	0.09**	0.11***
Government funds	1,020	0.10	-0.01	833	0.13	-0.02	-0.04
Micro-credit funds	1,020	0.01	0.01	833	0.01	0.00	0.01
Other sources	1,020	0.08	0.03	833	0.13	-0.05*	-0.04

Notes: Regressions control for strata and general individual and business characteristics. Standard errors robust to heteroscedasticity for technical assistance and clustered at course level for role model.

Table 3: Summary statistics-outcome variables

Variable:	At end of the class Mean	St. Dev.	Year after the class Mean	St. Dev.
Socio-economic:				
Income ($) last month	444,945	576,487		
Income main occupation ($) last month	293,270	642,173		
Income per capita ($) last month			126,104	116,297
Employed	0.07	0.25		
Self employed	0.83	0.37		
Has a business			0.79	0.41
Entrepreneuship:				
Sales ($) last month	445,747	986,785	554,464	968,079
Costs ($) last month	254,992	552,532	248,179	759,497
Profits	191,054	670,856	309,012	575,733
Weekly hours worked at business	18.82	19.78	29.11	25.16
Number of employees last month	0.64	2.10	0.43	1.11
Wagebill ($) last month	77,408	258,695	49,242	190,473
Registered with tax authority	0.33	0.47	0.38	0.49
Is in a different sector			0.46	0.50
Operates from a different location			0.40	0.49
Variance in sales in last year			0.63	0.30
Credit and banking:				
Has bank account	0.63	0.48	0.81	0.39
Has asked bank for credit	0.21	0.41	0.24	0.43
Has obtained credit	0.31	0.46	0.05	0.21
Financing of inputs:				
N purchased assets (0-11)	2.82	2.12		
Savings	0.78	0.42	0.89	0.32
Bank loan	0.23	0.42	0.18	0.39
Family loan	0.25	0.43	0.31	0.46
Government funds	0.02	0.14	0.37	0.48
Micro-credit funds	0.07	0.26	0.29	0.45
Other sources	0.03	0.17		
Applied for seed fund	0.30	0.46		
Management practices:				
Marketing actions (0-7)	2.53	2.34	3.88	1.72
Business analysis (0-6)	3.16	1.90	4.08	1.49
Book-keeping methods (0-6)	1.40	1.43		
Quantity of $ in petty cash	107,979	175,972	42,626	112,389
Desired sales growth (%)	2,689	48,965		
Knows how to compute opp. cost	0.66	0.47	0.74	0.44
Knows how to compute revenue	0.85	0.36	0.66	0.47
Score in exit exam (0-7)	6.08	1.34		

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Table 4: Compliance with Random Assignment

	Role model		Technical Assistance					
	N	Compliance	N_{AG}	Compliance	N_{AC}	Compliance	N_{AB}	Compliance
Cohort I (Beca 1)	204	0.79	128	0.56	138	0.64	138	0.68
Cohort II (Bono)	124	0.63	.	.	.	.	.	.
Cohort III (Beca II)	181	0.84	121	0.74	129	0.76	132	0.81
Cohort IV (Beca III)	322	0.84	176	0.70	192	0.74	193	0.80
Total	831	0.80	425	0.66	459	0.71	463	0.77

Note: Cohort II (Bono) is an advanced level so did no receive technical assistance.

Table 5: Impact on Socioeconomic and Business Variables - Short Run

Variables	Role Model		Technical Assistance		
	N	β_{RM}	N	β_{AC}	β_{AB}
Socioeconomic:					
Income ($) last month	1,155	-3,588	925	8,976	-15,609
		(28,509)		(33,048)	(27,790)
Income main occupation ($) last month	1,094	70,254**	875	-2,377	19,720
		(33,026)		(29,711)	(41,602)
Employed	1,308	-0.01	1,054	-0.01	-0.01
		(0.01)		(0.02)	(0.02)
Self employed	1,308	0.03**	1,054	0.01	-0.00
		(0.02)		(0.02)	(0.03)
Entrepreneuship:					
Sales ($) last month	1,015	48,429	804	-14,730	54,164
		(46,903)		(57,297)	(70,352)
Costs ($) last month	879	53,333**	700	9,128	57,031
		(20,357)		(33,242)	(38,038)
Profits	857	50,773	683	-39,829	48,444
		(39,726)		(46,654)	(75,926)
Weekly hours worked at business	1,082	0.39	975	-0.08	-1.69
		(0.89)		(1.31)	(1.27)
Number of employees last month	614	0.12	484	0.11	0.12
		(0.08)		(0.20)	(0.14)
Wagebill ($) last month	503	37,803**	390	-73,755*	-39,421
		(15,658)		(43,497)	(30,878)
Registered with tax authority	1,431	-0.01	1,146	0.02	0.01
		(0.02)		(0.03)	(0.03)
Credit and banking:					
Has bank account	1,320	-0.00	1,063	0.02	-0.01
		(0.02)		(0.03)	(0.03)
Has asked bank for credit	1,325	-0.03	1,068	0.05	0.03
		(0.02)		(0.03)	(0.03)
Has obtained credit	1,328	-0.03	1,071	0.07**	0.02
		(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.

Table 6: Impact on Firm Management - Short Run

Variables	Role Model		Technical Assistance		
	N	β_{RM}	N	β_{AC}	β_{AB}
Management practices:					
Marketing actions (0-7)	1,689	0.03	1,326	0.05	-0.04
		(0.11)		(0.14)	(0.14)
Business analysis (0-6)	1,689	0.04	1,326	0.15	0.05
		(0.09)		(0.11)	(0.11)
Book-keeping methods (0-6)	1,066	0.00	831	-0.09	-0.09
		(0.08)		(0.11)	(0.11)
Quantity of $ in petty cash	980	13,611*	780	16,747	-118
		(6,898)		(15,057)	(14,580)
Knows how to compute opp. cost	1,093	-0.10***	905	-0.01	0.01
		(0.03)		(0.04)	(0.04)
Knows how to compute revenue	1,093	0.03	905	0.01	0.04
		(0.03)		(0.03)	(0.03)
Score in exit exam (0-7)	940	0.15	745	0.21**	0.15
		(0.15)		(0.11)	(0.10)
Investment behavior and financing:					
N purchased assets (0-11)	1,167	-0.30***	928	0.05	0.12
		(0.08)		(0.12)	(0.12)
Desired sales growth (%)	907	4,337*	721	4,311	-2,040
		(2,427)		(2,891)	(2,142)
Savings	1,077	-0.02	853	0.01	0.02
		(0.02)		(0.04)	(0.04)
Bank loan	1,077	-0.00	853	-0.03	-0.01
		(0.02)		(0.03)	(0.03)
Family loan	1,077	-0.05*	853	-0.05	-0.00
		(0.02)		(0.04)	(0.04)
Government funds	1,077	0.01*	853	0.01	-0.00
		(0.01)		(0.01)	(0.01)
Micro-credit funds	1,077	0.01	853	0.03	-0.00
		(0.02)		(0.02)	(0.02)
Other sources	1,077	0.02**	853	0.02	0.01
		(0.01)		(0.02)	(0.01)
Applied for seed fund	1,281	0.07**	1,032	0.05	0.03
		(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 parenthesis.

Table 7: 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 8: Impact on Evaluation of Technical Assistance

Variables	N	β_{AC}	β_{AB}
Helped me to identify strengths and weaknesses	1,002	0.11	0.06
		(0.07)	(0.07)
Helped me to identify possible solutions	1,007	0.06	0.02
		(0.06)	(0.06)
Helped me to introduce changes in business management	983	0.01	-0.01
		(0.07)	(0.07)
Was useful	1,005	0.07	0.00
		(0.07)	(0.07)
Length was insufficient	1,008	-0.00	0.03
		(0.02)	(0.02)
Length was adecuate	1,008	-0.02	-0.05*
		(0.03)	(0.03)
Length was excesive	1,008	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.

Table 9: Impact on Socioeconomic and Business Variables - Long Run

Variables	Role Model		Technical Assistance		
	N	β_{RM}	N	β_{AC}	β_{AN}
Socioeconomic:					
Income per capita	969	16,590**	769	27,872**	20,774**
		(7,198)		(11,700)	(8,857)
Main household income source	1,100	0.01	873	0.01	-0.04
		(0.03)		(0.04)	(0.04)
Has business	1,118	0.04**	887	0.05	0.04
		(0.02)		(0.03)	(0.03)
Entrepreneurship:					
Is in a different sector	657	0.03	529	0.05	0.11**
		(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	1,097	1.47	868	-0.78	-1.30
		(0.93)		(1.95)	(2.02)
Registered with tax authority	1,099	0.06**	872	0.02	0.02
		(0.02)		(0.04)	(0.04)
Number of workers (last month)	1,046	-0.00	848	0.05	0.09
		(0.05)		(0.08)	(0.10)
Wagebill ($) last month	994	-9,723	809	923	11,174
		(7,785)		(14,332)	(16,458)
Sales ($) last month	792	78,434	617	57,824	177,830*
		(52,399)		(71,021)	(96,656)
Costs ($) last month	727	-700	570	-67,457	55,155
		(36,307)		(85,685)	(75,793)
Profits ($) last month	718	85,602***	562	47,114	90,272
		(29,877)		(49,774)	(64,247)
Variance in sales in last year	818	0.01	633	-0.05	-0.01
		(0.02)		(0.03)	(0.03)
Credit and banking:					
Has a bank account	873	0.02	675	0.04	-0.00
		(0.02)		(0.04)	(0.04)
Has credit	874	0.01	677	-0.07	-0.09**
		(0.03)		(0.05)	(0.04)
Obtained bank credit (last 6 months)	704	-0.02	559	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 parenthesis.

Table 10: Impact on Firm Management - Long Run

Variables	Role Model		Technical Assistance		
	N	β_{RM}	N	β_{AC}	β_{AN}
Management practices:					
Marketing actions (0-7)	884	0.07	683	0.00	0.16
		(0.08)		(0.17)	(0.16)
Business analysis (0-6)	881	-0.01	680	0.11	0.27*
		(0.07)		(0.15)	(0.14)
Quantity of $ in petty cash	791	3,223	610	2,385	-2,900
		(6,070)		(8,942)	(10,644)
Knows how to compute opp. cost	1,054	0.01	838	0.03	0.04
		(0.02)		(0.04)	(0.04)
Knows how to compute revenue	1,054	0.00	838	0.09**	0.00
		(0.03)		(0.04)	(0.04)
Financing of inputs:					
Savings	859	0.01	665	0.01	0.04
		(0.02)		(0.04)	(0.03)
Bank loan	858	-0.03	664	-0.01	-0.01
		(0.02)		(0.04)	(0.04)
Family loan	859	-0.00	665	-0.08	-0.08
		(0.02)		(0.05)	(0.05)
Government funds	859	-0.04	665	-0.11**	-0.05
		(0.03)		(0.05)	(0.05)
Micro-credit funds	859	0.04	665	-0.01	-0.03
		(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 parenthesis.

Table 11: Interactions: Business experience-Short run

Variables	Role Model			Personalized assistance		
	No Bus.	Young Bus	Old Bus	No Bus.	Young Bus	Old Bus
Socioeconomic and business:						
Income ($) last month	62,309	-110,721**	-41,056	75,310	69,484	-58,464
	(61,587)	(47,092)	(36,661)	(60,443)	(56,152)	(47,070)
Income main occ. ($) last month	146,684***	22,962	-21,497	-49,533	54,074	-24,482
	(50,891)	(39,884)	(43,710)	(57,395)	(50,260)	(42,381)
Employed	0.044	-0.024	-0.023	-0.056	-0.019	0.007
	(0.042)	(0.035)	(0.016)	(0.054)	(0.037)	(0.022)
Self employed	-0.025	-0.007	0.046**	0.034	-0.005	-0.014
	(0.064)	(0.042)	(0.023)	(0.059)	(0.057)	(0.031)
Profits	28,855	-183,785	19,144	75,006	125,516	-60,627
	(95,599)	(182,571)	(55,915)	(107,975)	(196,270)	(63,232)
Weekly hours worked at business	-3.514*	3.602	0.218	0.050	-2.347	-2.201
	(2.046)	(2.473)	(1.925)	(2.128)	(3.966)	(2.044)
Number of employees last month	-0.045	0.468	-0.025	-0.155	0.374	0.259
	(0.122)	(0.454)	(0.172)	(0.152)	(0.591)	(0.289)
Wagebill ($) last month	-11,664	27,051	80,615**	-21,151	-24,431	-112,256
	(22,375)	(61,492)	(39,823)	(32,763)	(76,734)	(113,937)
Registered with tax authority	-0.202***	0.064	-0.012	-0.000	-0.032	-0.006
	(0.049)	(0.056)	(0.029)	(0.057)	(0.068)	(0.041)
Knowledge and behaviors:						
Marketing actions (0-7)	0.064	-0.161	0.050	-0.192	0.179	-0.605**
	(0.295)	(0.343)	(0.184)	(0.308)	(0.387)	(0.232)
Business analysis (0-6)	0.039	0.039	-0.002	0.110	0.054	-0.217
	(0.229)	(0.233)	(0.131)	(0.220)	(0.274)	(0.165)
Book-keeping methods (0-6)	0.138	-0.373*	-0.001	-0.360	0.442*	-0.112
	(0.201)	(0.208)	(0.116)	(0.299)	(0.247)	(0.174)
Quantity of $ in petty cash	68,487**	5,074	-12,627	151,912***	7,355	15,018
	(28,536)	(20,910)	(9,958)	(56,247)	(26,805)	(17,661)
Knows how to compute opp. cost	-0.125	0.062	-0.086*	-0.036	-0.111	0.047
	(0.079)	(0.057)	(0.051)	(0.098)	(0.107)	(0.054)
Knows how to compute revenue	-0.095	0.031	0.070*	-0.002	0.078	-0.004
	(0.068)	(0.052)	(0.039)	(0.078)	(0.074)	(0.040)
Score in exit exam (0-7)	0.109	0.102	-0.076	0.201	0.541	0.051
	(0.185)	(0.215)	(0.106)	(0.199)	(0.437)	(0.101)
Investment decisions:						
N purchased assets (0-11)	-0.292	-0.599**	-0.377***	0.286	-0.318	0.282*
	(0.198)	(0.237)	(0.133)	(0.218)	(0.281)	(0.166)
Desired sales growth (%)	41,423	856*	2,121	882	23.004	16.320
	(35,107)	(437)	(1,510)	(2,641)	(182)	(90.991)
Savings	0.088	-0.010	-0.088**	-0.065	0.001	0.033
	(0.083)	(0.058)	(0.039)	(0.166)	(0.091)	(0.046)
Bank loan	0.009	-0.083	-0.036	-0.051	0.068	-0.042
	(0.060)	(0.057)	(0.032)	(0.155)	(0.066)	(0.047)
Family loan	-0.170**	-0.079	-0.017	-0.005	0.037	-0.044
	(0.078)	(0.068)	(0.031)	(0.141)	(0.103)	(0.045)
Government funds	0.032	0.028	0.020	0.006	0.044	-0.007
	(0.025)	(0.028)	(0.014)	(0.027)	(0.030)	(0.022)
Micro-credit funds	0.065	-0.015	0.015	0.067	-0.002	0.016
	(0.057)	(0.031)	(0.030)	(0.064)	(0.055)	(0.027)
Other sources	0.027	0.014	0.051***	0.011	-0.004	0.014
	(0.024)	(0.022)	(0.012)	(0.035)	(0.041)	(0.024)
Applied for seed fund	-0.044	0.072	0.102**	0.073	-0.001	0.076
	(0.069)	(0.079)	(0.044)	(0.075)	(0.102)	(0.049)

Table 12: Interactions: Business experience-Long Run

Variables	Role Model			Personalized assistance		
	No Bus.	Young Bus	Old Bus	No Bus.	Young Bus	Old Bus
Socioeconomic and business:						
Income per capita	-15,529	47,948**	19,199*	-17,088	38,635	11,363
	(14,577)	(21,720)	(11,173)	(22,740)	(28,285)	(14,609)
Main household income source	-0.067	-0.018	0.071	-0.146	0.021	0.064
	(0.087)	(0.085)	(0.053)	(0.126)	(0.117)	(0.074)
Has business	0.038	0.159***	0.020	0.120	-0.172*	0.052
	(0.058)	(0.053)	(0.025)	(0.087)	(0.087)	(0.042)
Is in a different sector	0.149	0.082	0.019	-0.075	0.032	0.099
	(0.123)	(0.097)	(0.042)	(0.191)	(0.121)	(0.075)
Operates from a different location	0.212*	0.067	0.027	0.279	-0.079	-0.122*
	(0.113)	(0.091)	(0.045)	(0.176)	(0.117)	(0.070)
Hours per week	-2.356	7.345*	3.586*	-0.323	-8.117	-0.174
	(3.109)	(3.813)	(2.011)	(3.987)	(5.117)	(3.468)
Registered with tax authority	-0.033	0.184***	0.034	0.017	0.055	0.004
	(0.056)	(0.069)	(0.043)	(0.067)	(0.093)	(0.053)
Number of workers (last month)	-0.170	0.084	-0.029	0.042	0.072	0.199
	(0.142)	(0.111)	(0.075)	(0.115)	(0.138)	(0.133)
Wagebill ($) last month	-9,325	-5,283	-8,054	-31,338	20,555	2,570
	(18,779)	(19,273)	(14,330)	(21,336)	(22,098)	(36,618)
Profits ($) last month	121,729	93,751	90,511**	170,934	134,386	150,210
	(135,736)	(115,677)	(40,631)	(163,093)	(181,624)	(140,215)
Knowledge and behaviors:						
Marketing actions (0-7)	0.113	0.663**	0.014	-0.075	0.444	-0.046
	(0.353)	(0.330)	(0.162)	(0.509)	(0.479)	(0.220)
Business analysis (0-6)	0.051	0.116	0.034	-0.149	-0.048	0.244
	(0.343)	(0.269)	(0.122)	(0.474)	(0.376)	(0.212)
Quantity of $ in petty cash	33,638	8,879	-4,092	-29,565	-3,487	29,444
	(25,430)	(9,469)	(10,628)	(40,959)	(10,205)	(21,221)
Knows how to compute opp. cost	-0.016	0.150**	0.026	0.080	0.094	-0.004
	(0.073)	(0.069)	(0.040)	(0.106)	(0.092)	(0.067)
Knows how to compute revenue	-0.015	0.007	0.009	0.022	0.037	0.056
	(0.079)	(0.068)	(0.044)	(0.112)	(0.103)	(0.072)
Investment decisions:						
Savings	-0.027	-0.056	0.048*	-0.145	-0.039	0.089
	(0.076)	(0.060)	(0.028)	(0.127)	(0.107)	(0.063)
Bank loan	-0.117	0.044	-0.038	-0.022	-0.025	0.030
	(0.079)	(0.064)	(0.038)	(0.112)	(0.092)	(0.060)
Family loan	0.069	-0.042	-0.052	0.001	0.013	-0.122*
	(0.107)	(0.081)	(0.044)	(0.147)	(0.119)	(0.068)
Government funds	-0.036	-0.206**	-0.029	-0.254	-0.000	0.046
	(0.101)	(0.090)	(0.042)	(0.177)	(0.136)	(0.065)
Micro-credit funds	0.063	0.046	0.088	0.074	-0.109	-0.004
	(0.092)	(0.088)	(0.072)	(0.158)	(0.089)	(0.071)

Variables	Role Model		Personalized assistance	
	<High School	≥ High School	<High School	≥ High School
Socioeconomic and business:				
Income ($) last month	-9,451	-108	7,693	-405
	(58,164)	(29,990)	(69,221)	(28,903)
Income main occupation ($) last month	-17,941	45,498	3,256	-9,097
	(38,146)	(35,795)	(55,980)	(18,708)
Employed	-0.044	-0.003	-0.044	-0.003
	(0.027)	(0.015)	(0.043)	(0.018)
Self employed	0.045	0.016	0.041	-0.011
	(0.038)	(0.019)	(0.041)	(0.025)
Profits	-12,364	43,932	-41,612	5,315
	(65,169)	(49,745)	(80,931)	(63,579)
Weekly hours worked at business	-0.600	0.260	-0.274	-1.086
	(2.236)	(1.131)	(2.538)	(1.410)
Number of employees last month	0.300	0.064	0.232	0.107
	(0.271)	(0.120)	(0.285)	(0.175)
Wagebill ($) last month	8,813	38,605*	-51,092	-54,968
	(32,177)	(22,704)	(50,721)	(34,779)
Registered with tax authority	0.010	-0.018	-0.061	0.037
	(0.039)	(0.021)	(0.044)	(0.028)
Knowledge and behaviors:				
Marketing actions (0-7)	0.149	0.040	-0.319	0.073
	(0.238)	(0.120)	(0.360)	(0.155)
Business analysis (0-6)	0.095	0.049	-0.011	0.153
	(0.174)	(0.099)	(0.240)	(0.132)
Book-keeping methods (0-6)	0.185	-0.053	-0.479**	0.003
	(0.197)	(0.083)	(0.205)	(0.108)
Quantity of $ in petty cash	-11,671	16,965*	-18,206	17,079
	(21,934)	(10,066)	(30,837)	(16,110)
Knows how to compute opp. cost	-0.092	-0.099***	0.071	-0.009
	(0.073)	(0.036)	(0.105)	(0.037)
Knows how to compute revenue	0.063	0.027	0.053	0.017
	(0.066)	(0.029)	(0.098)	(0.031)
Score in exit exam (0-7)	0.312	0.200	0.083	0.222**
	(0.230)	(0.147)	(0.165)	(0.092)
Investment decisions:				
N assets (0-11)	-0.531**	-0.339***	0.008	0.130
	(0.228)	(0.084)	(0.309)	(0.121)
Desired sales growth (%)	2,323	5,524	-6,724	2,840
	(3,824)	(3,393)	(12,774)	(3,218)
Savings	-0.021	-0.027	0.099	-0.000
	(0.062)	(0.030)	(0.072)	(0.038)
Bank loan	0.045	-0.020	-0.083	-0.005
	(0.047)	(0.017)	(0.083)	(0.032)
Family loan	-0.045	-0.059**	0.009	-0.038
	(0.042)	(0.028)	(0.077)	(0.042)
Government funds	-0.007	0.021*	0.016	0.003
	(0.013)	(0.011)	(0.018)	(0.015)
Micro-credit funds	0.050	-0.002	-0.003	0.014
	(0.034)	(0.025)	(0.040)	(0.018)
Other sources	-0.012	0.024**	0.001	0.014
	(0.023)	(0.009)	(0.021)	(0.016)
Applied for seed fund	0.054	0.060*	0.052	0.031
	(0.062)	(0.034)	(0.084)	(0.035)

Table 14: Interactions: Education-Long-run

Variables	Role Model		Personalized assistance	
	<High School	≥ High School	<High School	≥ High School
Socioeconomic and business:				
Income per capita	16,196	16,359*	16,849	25,458**
	(11,836)	(8,429)	(16,083)	(10,330)
Main household income source	0.003	0.019	0.003	-0.024
	(0.071)	(0.031)	(0.100)	(0.055)
Has business	0.103*	0.034*	-0.087	0.064**
	(0.054)	(0.019)	(0.057)	(0.030)
Has a bank account	0.000	0.019	0.017	0.010
	(0.071)	(0.027)	(0.083)	(0.040)
Has credit	-0.060	0.038	-0.202**	-0.051
	(0.070)	(0.026)	(0.094)	(0.049)
Obtained bank credit (last 6 months)	-0.071**	0.007	-0.034	0.007
	(0.033)	(0.015)	(0.055)	(0.031)
Is in a different sector	-0.169*	0.065*	0.340***	0.031
	(0.085)	(0.035)	(0.119)	(0.051)
Operates from a different location	-0.037	0.075**	0.188*	-0.059
	(0.074)	(0.032)	(0.098)	(0.060)
Hours per week	4.780	0.481	-9.487*	0.429
	(3.320)	(1.192)	(5.444)	(1.747)
Registered with tax authority	0.095	0.042	-0.115	0.058
	(0.060)	(0.029)	(0.081)	(0.036)
Number of workers (last month)	0.210	-0.077	-0.003	0.078
	(0.215)	(0.064)	(0.158)	(0.069)
Wagebill ($) last month	-1,802	-13,091	7,314	1,969
	(32,019)	(9,930)	(22,348)	(12,888)
Profits ($) last month	155,988	68,578*	71,884	71,997
	(117,859)	(40,678)	(84,973)	(53,559)
Knowledge and behaviors:				
Marketing actions (0-7)	-0.013	0.148	-0.466	0.205
	(0.280)	(0.092)	(0.343)	(0.191)
Business analysis (0-6)	0.032	0.008	-0.167	0.263*
	(0.255)	(0.086)	(0.253)	(0.154)
Quantity of $ in petty cash	24,427*	-1,754	-2,439	416
	(14,072)	(7,930)	(17,472)	(10,624)
Knows how to compute opp. cost	-0.099	0.040	0.031	0.044
	(0.069)	(0.027)	(0.089)	(0.042)
Knows how to compute revenue	0.025	-0.006	0.178	0.025
	(0.071)	(0.031)	(0.107)	(0.047)
Investment decisions:				
Savings	0.027	0.005	0.029	0.028
	(0.052)	(0.020)	(0.070)	(0.037)
Bank loan	0.015	-0.048*	-0.023	-0.012
	(0.044)	(0.025)	(0.079)	(0.039)
Family loan	0.088	-0.028	0.022	-0.103**
	(0.060)	(0.028)	(0.068)	(0.051)
Government funds	-0.030	-0.048	-0.286**	-0.021
	(0.071)	(0.031)	(0.119)	(0.049)
Micro-credit funds	0.126	0.034	0.032	-0.029
	(0.089)	(0.050)	(0.086)	(0.042)

Table 15: 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 ($) last month	26,970	89,753	-1,972			
	(35,283)	(86,397)	(28,881)			
Income main occ. ($) last month	93,748**	129,149	42,146			
	(39,389)	(91,753)	(31,673)			
Income ($) per capita				19,804**	16,920	37,119***
				(8,929)	(10,792)	(12,361)
Employed	-0.001	-0.009	-0.017			
	(0.015)	(0.021)	(0.019)			
Self employed	0.020	0.065**	0.032			
	(0.019)	(0.029)	(0.030)			
Has a business				0.060***	0.103***	0.022
				(0.020)	(0.036)	(0.035)
Is in a different sector				0.044	0.028	0.001
				(0.043)	(0.062)	(0.051)
Operates from a different location				0.085**	0.101*	0.062
				(0.034)	(0.060)	(0.053)
Profits	64,869	167,842*	-19,198	89,362**	30,286	29,493
	(49,376)	(88,147)	(44,602)	(42,162)	(52,075)	(48,688)
Weekly hours worked at business	0.657	3.395*	1.046	1.755	2.943	-0.111
	(1.134)	(1.891)	(1.826)	(1.160)	(2.476)	(1.894)
Number of employees last month	0.165	-0.092	0.086	-0.042	-0.126	-0.037
	(0.127)	(0.148)	(0.201)	(0.065)	(0.092)	(0.086)
Wagebill ($) last month	42,616*	25,947	5,488	-16,431*	-24,500**	-11,222
	(22,495)	(22,208)	(23,567)	(9,632)	(11,935)	(13,306)
Registered with tax authority	-0.019	0.063	0.024	0.047*	0.156***	0.116***
	(0.022)	(0.041)	(0.034)	(0.026)	(0.039)	(0.041)
Managerial skills:						
Marketing actions (0-7)	0.110	0.408***	0.058	0.153	0.225	0.033
	(0.139)	(0.142)	(0.184)	(0.104)	(0.136)	(0.178)
Business analysis (0-6)	0.047	0.219	0.159	0.019	0.138	0.085
	(0.114)	(0.137)	(0.172)	(0.091)	(0.139)	(0.146)
Book-keeping methods (0-6)	-0.022	0.096	-0.047			
	(0.100)	(0.131)	(0.116)			
Quantity of $ in petty cash	11,375	36,885**	-5,681	5,614	18,889	21,848
	(8,955)	(16,370)	(12,375)	(8,400)	(21,244)	(17,696)
Knows how to compute opp. cost	-0.101***	-0.144***	-0.095*	0.050**	0.034	0.030
	(0.037)	(0.054)	(0.049)	(0.022)	(0.040)	(0.048)
Knows how to compute revenue	0.044	0.043	0.063**	0.009	0.045	-0.015
	(0.027)	(0.035)	(0.027)	(0.031)	(0.053)	(0.052)
Score in exit exam (0-7)	0.218	0.243	0.357**			
	(0.151)	(0.182)	(0.165)			
Investment decisions:						
N purchased assets (0-11)	-0.307***	-0.307**	-0.554***			
	(0.094)	(0.150)	(0.130)			
Desired sales growth (%)	1,089	262	2,758			
	(1,006)	(501)	(2,564)			
Savings	-0.047	-0.059*	-0.073*	0.002	0.024	0.030
	(0.030)	(0.033)	(0.041)	(0.024)	(0.030)	(0.032)
Bank loan	-0.002	-0.015	-0.005	-0.042	-0.072*	-0.043
	(0.016)	(0.030)	(0.032)	(0.026)	(0.043)	(0.042)
Family loan	-0.073**	-0.080**	0.014	-0.036	-0.006	0.022
	(0.030)	(0.038)	(0.039)	(0.028)	(0.039)	(0.058)
Government funds	0.023**	0.031*	0.031***	-0.050	-0.045	-0.004
	(0.011)	(0.016)	(0.012)	(0.037)	(0.054)	(0.046)
Micro-credit funds	0.014	0.010	-0.035	0.072	0.050	-0.083
	(0.026)	(0.034)	(0.026)	(0.058)	(0.064)	(0.065)
Applied for seed fund	0.066*	0.033	0.082			
	(0.038)	(0.050)	(0.051)			

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Table 16: Interactions: Role model success(income)

Variables	Short-run	Long-run
Socioeconomic and business:		
Income ($) last month	54,928	
	(45,815)	
Income main occ. ($) last month	83,739*	
	(46,213)	
Income ($) per capita		-12,120**
		(4,590)
Employed	0.001	
	(0.011)	
Self employed	-0.010	
	(0.013)	
Has a business		0.017
		(0.012)
Is in a different sector		-0.022
		(0.030)
Operates from a different location		0.040
		(0.025)
Profits	111,598**	-18,618
	(42,232)	(36,194)
Weekly hours worked at business	-0.344	1.491*
	(0.991)	(0.760)
Number of employees last month	-0.021	0.006
	(0.062)	(0.057)
Wagebill ($) last month	32,965***	-10,435
	(8,737)	(10,147)
Registered with tax authority	0.012	0.010
	(0.016)	(0.020)
Managerial skills:		
Marketing actions (0-7)	0.027	0.087
	(0.109)	(0.080)
Business analysis (0-6)	-0.155	0.099
	(0.102)	(0.072)
Book-keeping methods (0-6)	-0.012	
	(0.078)	
Quantity of $ in petty cash	1,986	13,462**
	(5,226)	(6,552)
Knows how to compute opp. cost	0.002	0.031*
	(0.029)	(0.018)
Knows how to compute revenue	-0.022	0.012
	(0.022)	(0.025)
Investment decisions:		
N purchased assets (0-11)	0.046	
	(0.081)	
Desired sales growth (%)	750*	
	(425)	
Savings	0.018	0.006
	(0.023)	(0.016)
Bank loan	0.004	-0.027
	(0.014)	(0.017)
Family loan	0.076***	0.060***
	(0.024)	(0.018)
Government funds	0.018***	0.069**
	(0.006)	(0.026)
Micro-credit funds	-0.024	-0.034
	(0.021)	(0.042)
Applied for seed fund	0.075*	
	(0.038)	36