Business training in Tanzania:

From research driven experiment to local implementation

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Abstract

Field experiments documenting positive treatment effects have a strong policy message: Scale up! However, such experiments are typically implemented under close supervision of the research group in charge of the study. In contrast, scaling up would typically imply relying on local organization. It is not obvious that the positive treatment effects identified in the research driven intervention can be replicated locally. The present study explicitly addresses this challenge by analyzing the local version of a research driven business training program among small-scale microfinance entrepreneurs in Tanzania. Comparing the local program with the research-led program in terms of attendance and subjective evaluation, we find that success in local implementation cannot be taken for granted. Moreover, an analysis of long-term outcomes also demonstrates a weaker impact of the local program. We conclude that the estimated effect of research-led interventions should be interpreted as an upper bound of what can be achieved when scaling up such interventions locally.

1. Introduction

Field experiments are widely used in developing countries to investigate a host of issues of importance to policy makers, including the role of community participation in improving health services (Björkman and Svensson 2009), the effect of deworming on educational outcomes (Kremer and Miguel 2003), and the effect of business training on microenterprise development (Karlan and Valdivia, 2011, Berge *et al.*, 2011). These studies evaluate carefully implemented interventions, closely monitored by a research team. To draw policy implications, however, one would like to know what the effect of a program is when the researchers have stepped back. Are local stakeholders able to implement similar programs?

The difficulty of scaling up is particularly pressing when the program is complex, where the intervention stretches over time, and where the organizational setting and skills of the service providers matter greatly for the quality of the services provided. As emphasized by Sternberg *et al.* (2006) when analyzing the challenges of scaling up educational programs: "Programs often work on a small scale due to adoption by highly motivated individuals. Moreover, in the context of small-scale implementations, a key factor is often the proximity of the creators of the program to its first adopters and implementers. This proximity implies not only the physical proximity, but also the proximity of ideas and beliefs - those educators who are willing to try new programs usually see a value in doing so and thus are more predisposed to raise the odds of the program to succeed. Therefore, programs may work on a small scale, but they fail when they are upscaled because the initial sample of the program's deliverers was not representative of the larger population" (pp. 206-207).

In Bjorvatn and Tungodden (2010) and Berge *et al.* (2011), we document by a randomized field experiment that a business training program given by professional trainers from the University of Dar es Salaam Entrepreneurship Centre (UDEC) significantly affected business skills, entrepreneurial attitudes, business practices, and business outcomes among microfinance clients of the microfinance institution Promotion of Rural Initiative and Development Enterprise (PRIDE) Tanzania. For PRIDE, the business training program was seen as a pilot project that, if successful,

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would be scaled up in one form or another by the institution. However, two important questions remain: Can they implement the program? Should they implement it?

The main focus of the present paper is on the first question. We analyze a local version of the intervention where some microfinance clients were offered training by internal credit officers, and compare it to the intervention using professional trainers from UDEC. This comparison sheds light on PRIDE's ability to implement such a program. Outsourcing business training to professional trainers, such as UDEC, is expensive and hard to implement on a large scale in Tanzania, and thus an important question for PRIDE when considering whether to scale up is whether such a program can be offered in-house. Would the quality of an internal program be sufficiently high to attract the attention of the entrepreneurs?

The second question is whether PRIDE should implement the program. In Berge *et al.* (2011), we document a positive impact of business training on business outcomes, in particular for male entrepreneurs. Thus, from a societal point of view, business training is likely to be beneficial. However, as stressed by Armendáriz de Aghion and Morduch (2010), a microfinance institution typically balances social impacts on the one hand and financial sustainability on the other hand, and the impact of business training on the latter is not trivial.

One motive for PRIDE to offer business training to its clients on a regular basis is clearly that this could provide a competitive edge over other microfinance institutions and, thus, attract more customers. Another argument in favor of business training is that the clients' increased skills and potentially stronger loyalty to the institution could translate into higher loans and fewer repayment problems. But this is not necessarily the outcome. Indeed, a more knowledgeable and successful entrepreneur may find cheaper sources of finance outside the microfinance institution. If training triggers the exit of clients, the microfinance institution may become more reluctant to offer such services to its clients. Further, PRIDE's decision on whether to offer the training would also depend on the clients' willingness to pay for the service. Does PRIDE have to offer the program for free in order to make it attractive to the clients, or can the costs be covered by imposing a participation fee? We discuss these issues in the concluding part of the paper.

Our main finding is that the external training clearly worked better than the internal training. First, attendance was higher and the course was considered more beneficial by the externally trained entrepreneurs; second, the externally trained entrepreneurs gained more business knowledge and reported a higher level of happiness with their overall situation. Business knowledge, course satisfaction and general happiness were measured two and a half years after the training was completed, which suggests enduring differences in assessment and impact. Our results thus indicate that the impact of external research projects may represent an upper bound of what would be the impact if such projects were to be scaled up by a local organization.

The remainder of the paper is organized as follows. Section 2 briefly describes the intervention, a business training program offered to microfinance entrepreneurs in Dar es Salaam, Tanzania. Section 3 presents the data and the empirical strategy, with an emphasis on randomization procedures and the treatment-control balance, and Section 4 reports the main results. Section 5 concludes.

2. The training program

The business training program consisted of 21 sessions, each lasting 45 minutes, and was offered for free at the premises of the microfinance institution immediately after the weekly loan meeting of the clients. The aim of the program, which commenced in August 2008 and ended in January 2009, was to unleash entrepreneurship among the microfinance clients. It was developed by UDEC and piloted extensively.[1] The course covered a range of topics, such as record keeping, marketing practices, customer care, and employee management. A participatory method was adopted, with the sessions focusing on real world examples in order to make the insights vivid for the clients. The trainers also encouraged the participants to learn from each other's experiences, and to share their business challenges and problems.

For capacity building purposes, PRIDE chose four of its most experienced credit officers to be involved in the training of a subset of the clients. The credit officers attended the sessions given by the professional trainers, and were also instructed and evaluated by them.

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[1] The training program is described in detail in Berge *et al.* (2011).

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3. Empirical strategy

We use a randomized field experiment to study PRIDE's ability to implement the business training program using internal resources. [2] One group of clients was randomly assigned to being trained by professional trainers (external intervention), whereas another group of clients was assigned to receiving the same training from the internal credit officers (internal intervention). In all other respects, the training programs were identical. They covered the same content and were given at the same premises following the loan meeting of the clients. The two groups were also treated in the same manner by PRIDE. A snack and a soft drink were offered to all participants in each session, and everyone was given the incentive of receiving a graduation diploma if attending at least ten sessions. Thus, the only difference between the two interventions was the trainers. Given that the clients were randomly allocated to an internal or an external trainer, we can therefore identify the causal effect of replacing an external trainer by an internal trainer.

3.1 Randomization procedures

We selected two of PRIDE's branches in Dar es Salaam, located in Magomeni and Buguruni respectively, for the interventions. The training was offered on Tuesdays in Magomeni and on Thursdays in Buguruni. The external training was offered to clients who had their loan meetings between 9 am and 1 pm, the internal training was offered to clients who had their loan meeting at 2 pm. We only included clients with PRIDE loans between 500 000 TZS (USD 335) and 1 000 000 TZS (USD 670), amounts that represent the second and third steps on the loan ladder in the group lending program. This was motivated by the fact that there are very high dropout rates among clients with smaller loans, and also that we wanted to avoid an excessively heterogeneous target group for the sessions. At the chosen time slots, there were 565 clients eligible for external training and 114 clients eligible for internal training.

As loan groups are randomly assigned a loan meeting day and hour according to the availability of time slots at the branches of PRIDE, there is no reason to believe that

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[2] On the methodology of randomization, see Duflo *et al.* (2008). For a critical perspective, see Deaton (2010) and Rodrik (2009).

there is any systematic difference between the eligible clients according to the time of the loan meeting. This is also confirmed by our baseline data. There is, for example, no correlation between the sectors in which the entrepreneurs are involved and the time of their loan meeting. Thus, our working hypothesis is that the entrepreneurs were effectively randomly assigned to either external or internal training.

The share of eligible clients that showed up at the first or second session was almost identical for the two groups, 290 out of 565 for the externally trained group (51.4%) and 59 out of 114 (51.8%) for the internally trained group. These clients constitute the sample of our analysis.[3] There is no reason to assume that the selection process into the initial sessions differs between the externally trained group and the internally trained group.[4] First, we used the same invitation letter for external and internal training, and there was no mentioning of who would be the instructor. Second, the external trainer played a leading role in the initial sessions also in the internal program.

In sum, we argue that there should be no systematic difference between the pool of clients that initially showed up for the external training or the internal training. Hence, we shall think of the comparison between the clients receiving external training and

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[3] Focusing only on those who attended the first session gives very similar results to those reported here, but the sample size is naturally smaller. Note that our analysis is restricted to clients who received training. An alternative approach would be to include all eligible clients in the sample and conduct an intention to treat analysis. For the internal group, however, we only have detailed data on the clients actually attending the training, and thus we are restricted to a comparison of the treatment effect on the treated.

[4] There was a slight difference in recruitment procedure between the external and the internal group. For the external group, we conducted a baseline survey where we managed to interview 319 of the 565 eligible clients. The baseline survey was presented to the entrepreneurs as an effort "to identify strategies to improve the functioning of microcredit institutions in Tanzania", and, hence, they were not informed about the prospective business training course. After the baseline survey, the clients we had reached received an invitation to attend training. We did not conduct a baseline survey of the clients assigned to internal training because we did not initially plan to include them in the research part of the project. For this group, therefore, we invited all eligible clients who we could be reached at the loan meeting where the training was announced.

those receiving internal training as a randomized field experiment measuring the treatment effect on the treated.

3.2 Treatment–control balances

Table 1 shows the balance on observables between the externally trained group and the internally trained group. There are no significant differences between the two groups on observable background variables, which indicates that the randomization procedure was successful.

In 2011, we conducted a follow-up study of all the clients who received training. For both the internally and externally trained group, we collected information on their subjective rating of how beneficial they had found the course, conducted a business knowledge test, and also collected data on how happy they were with their overall situation. For the externally trained group, we also collected more detailed information on their business performance, but for practical reasons it was not feasible for us to collect such data for the internally trained group.

In the follow-up study, we managed to reach 268 out of 290 in the externally trained group and 47 out of 59 in the internally trained group. As we show in the appendix, the follow-up sample is also balanced (Table A1), with the 34 clients that we did not reach in the follow-up survey differing from the interviewed sample only on one observable background variable, loan size (Table A2). The assignment to internal training is predictive of attrition (Table A3), however, and, therefore, we report in the appendix robustness checks of our main analysis (Table A4), adopting the approaches of Kling *et al.* (2007) and Lee (2009).[5] Largely, our main results are not sensitive to various assumptions about the treatment effect for attriters.

3.3. Econometric model

The main strategy in the empirical analysis is to estimate the following equation:

$$Y_i = \beta_0 + \beta_1 Internal_i + \gamma X_i + \varepsilon_i \tag{1}$$

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[5] These approaches are also adopted in other recent work on entrepreneurship training, see for example Karlan and Valdivia (2011) and Fairlie *et al.* (2012).

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where *Y* is an outcome variable, *Internal* is a binary variable taking the value one if the entrepreneur was offered training by the internal instructor and zero if offered training by the external instructor, and *X* is a vector of control variables. Given that there are no systematic differences between the internally trained and the externally trained group, β_1 is an estimate of the causal impact of receiving training from an internal trainer rather than an external trainer.[6]

4. Results

4.1 Attendance and subjective evaluation

Is the local institution able to offer a business training program in-house that attracts the clients and is perceived as beneficial to them? To study this question, we consider attendance rates and the participants' subjective evaluation of the course

Figure 1 gives an overview of attendance over time for the two groups. As we have already reported in our discussion of the randomization procedure, the two groups had similar levels of attendance in the first and second session, but the attendance in the internally trained group clearly dropped below the attendance in the externally trained group in later sessions. On average, the clients in the externally trained group attended 15.7 sessions and the clients in the internally trained group attended 13 sessions. There is also a large difference in the share that received a diploma (which required attending at least 10 sessions), 90% versus 66.6%.

Given that the internal training and the external training took place at different times of day, one might worry that the timing itself may affect the ability to turn up at the training. For example, it might be more difficult to attend training in the afternoon than in the morning. To investigate this possibility, we collected data on loan meeting attendance, but we did not find any difference in attendance at loan meetings between the time slots assigned to external training and the time slot assigned to internal training (t-test of equality, p=0.32).

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[6] As a robustness check, we have also calculated propensity score matching estimates, and they are in line with the treatment effects that are reported in the paper.

Low attendance may be an indication of the internal training being of lower quality, and in the follow-up study we asked the entrepreneurs how much they had benefited from the course. This was reported on a scale from 1 – 10, where 1 indicated no benefit at all and 10 indicated that they had benefited a lot. Figure 2 shows the distribution of the subjective evaluations, where we observe that the majority of participants seem to perceive the course to be beneficial, both in the externally trained group and the internally trained group. At the same time, we observe large differences between the two groups. The average score is 9 in the externally trained group and 7.6 in the internally trained group, and there is also a large difference in the share of participants reporting the top score (54.9% versus 21.3%).

Table 2 and Table 3 confirm the impressions from Figure 1 and Figure 2, respectively, and report precisely estimated causal effects of being assigned to an internal trainer rather than an external trainer. Both the attendance and subjective evaluation of the course are significantly lower in the internally trained group than in the externally trained group, and these effects are statistically highly significant. We also observe that introducing covariates has a negligible impact on the estimated Internal Training coefficient, which indicates that the results are not driven by a lack of balance between the two groups.

In sum, we find that the course offered by the internal trainers was less well received by the entrepreneurs; the internal training had lower attendance and was perceived as less beneficial. We now turn to a study of whether the asymmetry in quality is also reflected in long-term outcomes for the entrepreneurs.

4.2 Long-term outcomes

We investigate long-term outcomes in two steps. First, we investigate the impact on the business knowledge of the entrepreneurs; second, we investigate the impact on their overall situation. Ideally, for the latter, we would have liked to include detailed business and household data, but such data are not available for the internally trained group. Thus, in studying the long-term effect on their overall situation, we have to restrict ourselves to general self-reported evaluations from the entrepreneurs.

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We conducted a business knowledge test, where the entrepreneurs were tested in their understanding of the profit concept. They were introduced to the case of Juma, who makes fruit juice at Kimara, Dar es Salaam, and sells it in plastic containers to grocery stores and restaurants in different parts of the city. The entrepreneurs were given the task of deciding which expenses to include when calculating the profits of Juma's business. They were given a list of different expenses, including irrelevant expenses like school fees and relevant expenses like payment for posters to advertise the juice.

Figure 3 shows the distribution of the scores, where we observe a clear difference between the two groups; the average score was 81.7% for the externally trained group versus 75.7% for the internally trained group. And whereas 25.3% of the entrepreneurs in the externally trained group correctly identified all the cost items, only 12.8% did so in the internally trained group. Thus, the externally trained group showed significantly better understanding of the profit concept than the internally trained group, which we take as evidence of a difference in their knowledge of how to run a business. Regressions (1) and (2) in Table 4 show that the causal effect of having an internal trainer instead of an external trainer is precisely estimated both with and without covariates. We also note that the score on the test is significantly correlated with the entrepreneur's level of education, which suggests that the test does indeed capture the entrepreneur's level of human capital.

To compare the wider impact of the training, we asked the entrepreneurs to evaluate their situation more broadly. Specifically, we asked them four questions on self-reported happiness; how happy they were with life in general, with their economic situation, with their situation as entrepreneurs, and with their family situation. The reason for this broad set of questions was that we wanted to capture the possibility that the course had an impact not only on the performance of their businesses, but also potentially on their life situation in general, including family issues. One could for example imagine that the course could be beneficial both for monitoring household expenses and, for females in particular, in strengthening their bargaining power in the household.

For each dimension, the participants were asked to report a score from 1 (very unhappy) to 5 (very happy). Not surprisingly, the individual responses across dimensions are highly correlated and the pattern when comparing the externally

trained group and the internally trained group is the same for each dimension. Thus, we focus on the average self-reported score for each entrepreneur. As shown in Figure 4, the externally trained entrepreneurs are clearly happier with their situation than the internally trained entrepreneurs, and, as shown in regressions (3) and (4) in Table 3, this difference is precisely estimated, with and without covariates. We also observe that the younger entrepreneurs are happier than the older entrepreneurs, which is in line with findings in the literature on happiness (Blanchflower and Oswald, 2008).

In sum, the follow-up study shows systematic differences between the externally trained group and the internally trained groups in the long-term outcomes. Entrepreneurs in the externally trained group have more business knowledge and are more satisfied with their overall situation than entrepreneurs in the internally trained group.

5. Concluding remarks

Field experiments in poor countries have improved our understanding of the causal mechanisms at work in the development process. At the same time, from a policy perspective, there has been a lack of focus on how these research projects can be taken further and particularly on the extent to which they can be implemented and scaled up by local stakeholders. In this paper, we have discussed these challenges in light of a recent field experiment in Tanzania, where our research team organized a business training program for a group of entrepreneurs in the microfinance institution PRIDE.

As part of this research project, we also implemented a capacity building component to assist PRIDE in scaling up the program by using internal resources. In particular, local credit officers were trained by professional instructors, and subsequently trained a subset of the clients. To evaluate this local version of the intervention, we randomly assigned entrepreneurs to external trainers or internal trainers. Our analysis shows that the internal training program systematically performed worse than the external training program. The internal training program attracted lower attendance, was considered less beneficial by the entrepreneurs, and was less effective in increasing the human capital of the entrepreneurs and improving their overall situation. We believe that this provides an important lesson to the present literature on field

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experiments in developing countries. It shows that the impact of external research projects most likely represents an upper bound of what would be the impact if such projects were to be scaled up by a local organization.

This certainly has implications for the second question that we raised in the introduction, namely whether the local institution *should* implement such a training program. It is beyond the scope of this paper to answer this question in detail, but let us still highlight some of the critical issues involved in this decision. First, even though we have shown that the effect of the internal training program is weaker than that of the external training program, we have not provided evidence of whether the internal training program overall had a positive impact on the entrepreneurs. To do this, we would need a control group receiving no training that could be compared to the internally trained group. An extensive evaluation of the internally trained group was not part of the initial research project, and thus no control group was established.[7] In Berge *et al.* (2011), we show that the external training program clearly had a positive impact on the entrepreneurs, so we cannot rule out that even though the impact from the internal training program was weaker than for the external training program, the overall effect may still be positive compared to not receiving training. Furthermore, one cannot exclude the possibility that the quality of the internal training would improve over time.

In addition to considering the impact for the entrepreneurs, a microfinance institution would also have to study how beneficial the training program is for the organization itself. By offering a training program, a microfinance institution could potentially obtain both better clients (higher loan levels, fewer repayment problems) and more clients (existing clients stay, training attracts new clients). But it also runs the risk of better clients exiting the microcredit institution, since they may now have better access to credit from other sources. Two years after the baseline study, however, there is no evidence of (external) training affecting loan size, exit rates or default rates. This suggests that, to the extent that training has an impact on the financial sustainability of

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[7] To be able to compare the group assigned to internal training to the control group used in the impact analysis of the external training in Berge et al. (2011), we would have needed detailed data on the eligible clients in the internal group who did not attend training.

the institution, the impact would come from the recruitment of new clients rather than from existing clients.

Offering a business training program is costly. Indeed, the variable cost per participant of the externally provided training program was estimated to be around 100 000 TZS (USD 67). This covers compensation to the trainers, as well as expenses related to providing teaching materials and soft drinks to the participants. These costs would be lower if using internal trainers, and thus the cost-benefit analysis of using external versus internal trainers is not straightforward. The use of internal trainers certainly reduces costs, but, as we have documented, also seems to reduce the impact of such a training program. We do not have detailed data on the costs of internal trainers, and thus we cannot elicit more details on this trade-off.

A relevant question for the microfinance institution, when considering whether to offer training in-house or not, is whether at least part of their costs can be covered by a participation fee. How much are entrepreneurs willing to pay for such a training program? In a follow-up survey conducted in mid-2009, we asked both the externally trained and the untrained entrepreneurs a hypothetical question on the willingness to pay for such a training program. Specifically, we asked them: "Imagine that you were given the opportunity to participate in a 20-session (with 60 minutes per session) entrepreneurship training course catered to your level. What is the maximum amount you would be willing to pay per session?" It is well-known that one should interpret such responses with care, since they may reflect strategic reasoning and not reveal the underlying true preferences for receiving training. Still, we find it interesting that the median self-reported willingness to pay in both the untrained group and the externally trained group was 20 000 TZS (approximately USD 13), which is one fifth of the estimated cost of offering such a course using the external trainers. Presumably, however, PRIDE can organize the course cheaper in-house. Our numbers therefore indicate that it may be possible for PRIDE to cover a significant part of its costs through participation fees.

Our study highlights the importance of investigating the local capacity and local willingness to build on the lessons from a research driven field experiment. Further research is clearly needed in this area, to ensure that not only researchers, but also the

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local communities, benefit from the many important field experiments presently conducted in developing countries.

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Table 1: Treatment–control balance (full sample)

	(1)	(2)	(3)	(4)
	Total	Internal Group	External Group	Difference
Female	0.61	0.63	0.61	0.02
	(0.03)	(0.06)	(0.03)	(0.07)
Age	39.20	37.59	39.53	-1.94
	(0.45)	(0.90)	(0.51)	(1.19)
Loan Size	753.01	754.24	752.76	1.48
	12.74	(31.27)	(13.97)	(34.04)
Education	7.82	7.83	7.82	0.01
	(0.12)	(0.29)	(0.13)	(0.31)
Branch	0.49	0.44	0.50	-0.06
	(0.03)	(0.07)	(0.03)	(0.07)
Observations	349	59	290	

*Note: The table reports average values. Female is a dummy variable with a value of one if the participant is a female. Age is expressed in number of years. Loan size denotes the loan size in PRIDE in 2008, in thousand Tanzanian shillings. Education is the number of years of schooling. Branch is a dummy variable, which takes the value one if the branch is Magomeni and zero if it is Buguruni. Standard errors are in parentheses: *$p<0.10$, ** $p<0.05$, *** $p<0.01$.*

Table 2: Attendance & Diploma

	(1)	(2)	(3)	(4)
	Attendance	Attendance	Diploma	Diploma
Internal Training	-2.714**	-2.569**	-0.239***	-0.237***
	(1.067)	(1.025)	(0.080)	(0.078)
Education		0.136		-0.003
		(0.120)		(0.008)
Age		0.045		-0.000
		(0.034)		(0.002)
Female		-0.905		-0.017
		(0.605)		(0.039)
Loan Size		-0.001		-0.000
		(0.001)		(0.000)
Branch		0.700		0.025
		(0.603)		(0.041)
Constant	15.714***	13.545***	0.900***	0.955***
	(0.291)	(2.111)	(0.018)	(0.143)
Observations	349	349	349	349

Note: Attendance is the number of sessionss (1-21) the clients participated in. Diploma is a dummy variable, taking the value one if the participants attended 10 or more of the sessions, thereby qualifying for a diploma awarded at the graduation ceremony. Internal training is a dummy variable, taking the value one if the training is provided by internal trainers and zero if the training is provided by external trainers. Education is the number of years of schooling. Age is expressed in number of years. Female is a dummy variable with a value of one if the participant is a female. Loan size denotes the loan size in PRIDE in 2008, in thousand Tanzanian shillings. Branch is a dummy variable, which takes the value one if the branch is Magomeni and zero if it is Buguruni. Clustered standard errors are in parentheses.
* p<0.10, ** p<0.05, *** p<0.01.

Table 3: Benefit of training

|	(1)	(2)	(3)	(4)
	Benefit	Benefit	Max Benefit	Max Benefit
Internal Training	-1.438***	-1.417***	-0.336***	-0.322***
	(0.282)	(0.286)	(0.061)	(0.061)
Education		0.040		0.015
		(0.039)		(0.012)
Age		0.012		0.007**
		(0.011)		(0.003)
Female		-0.117		-0.067
		(0.186)		(0.057)
Loan Size		-0.000		-0.000
		(0.000)		(0.000)
Branch		0.078		0.005
		(0.192)		(0.054)
Constant	9.034***	8.454***	0.549***	0.210
	(0.099)	(0.676)	(0.030)	(0.192)
Observations	315	315	315	315

Note: Benefit is the self-reported score of how much the entrepreneur benefited from the course (1-10), Max Benefit is a dummy variable, taking the value one if the entrepreneur self-reported the top score (10). Internal training is a dummy variable, taking the value one if the training is provided by internal trainers and zero if the training is provided by external trainers. Education is the number of years of schooling. Age is expressed in number of years. Female is a dummy variable with a value of one if the participant is a female. Loan size denotes the loan size in PRIDE in 2008, in thousand Tanzanian shillings. Branch is a dummy variable, which takes the value one if the branch is Magomeni and zero if it is Buguruni. Standard errors clustered at loan group in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 4: Knowledge & Happiness

|	(1)	(2)	(3)	(4)
	Knowledge	Knowledge	Happiness	Happiness
Internal Training	-0.054**	-0.056**	-0.225**	-0.208**
	(0.027)	(0.026)	(0.108)	(0.104)
Education		0.012***		0.001
		(0.004)		(0.016)
Age		-0.001		0.008**
		(0.001)		(0.004)
Female		-0.024		-0.012
		(0.018)		(0.069)
Loan Size		0.000		0.000
		(0.000)		(0.000)
Branch		0.025		-0.140*
		(0.017)		(0.076)
Constant	0.811***	0.713***	4.186***	3.857***
	(0.009)	(0.058)	(0.041)	(0.242)
Observations	315	315	315	315

*Note: Knowledge is the percentage of correct answers in the knowledge test. Happiness is the average of the self-reported happiness on four dimensions (1-5). 11 entrepreneurs did not report on one of the four dimensions, and for them we use the average in the other three dimensions. The results are not sensitive to excluding these entrepreneurs. Internal training is a dummy variable, taking the value one if the training is provided by internal trainers and zero if the training is provided by external trainers. Education is the number of years of schooling. Age is expressed in number of years. Female is a dummy variable with a value of one if the participant is a female. Loan size denotes the loan size in PRIDE in 2008, in thousand Tanzanian shillings. Branch is a dummy variable, which takes the value one if the branch is Magomeni and zero if it is Buguruni. Standard errors clustered at loan group in parentheses. * p<0.10, ** p<0.05, *** p<0.01.*

Figure 1: Attendance per session
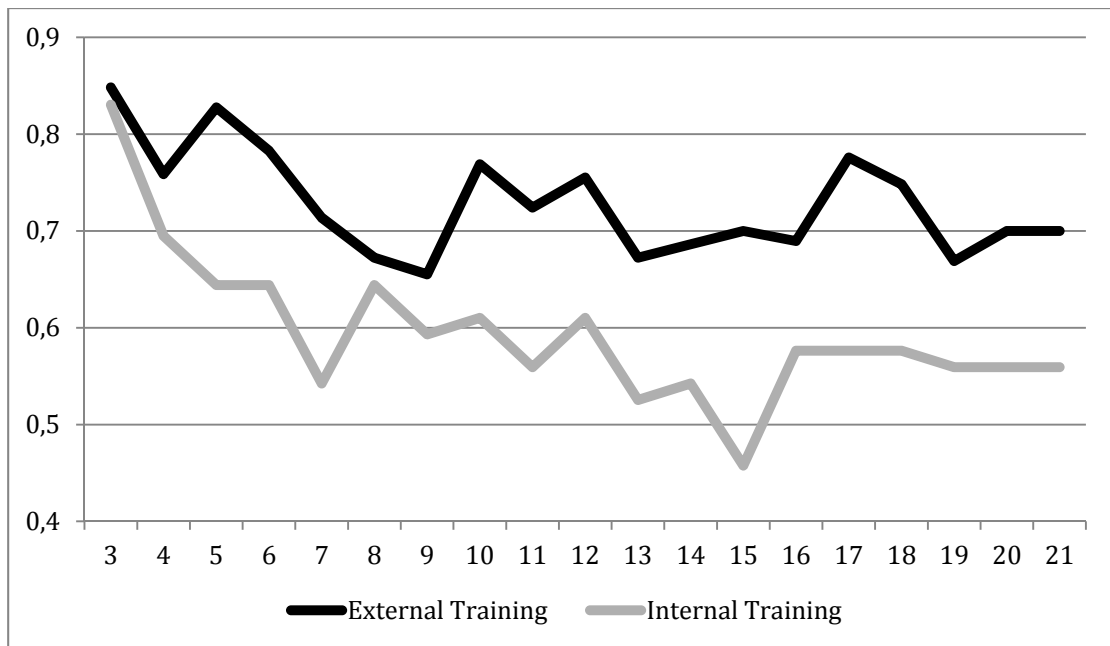
Note: The figure shows the share of participants in our sample attending each of the sessions (3-21), by external training and internal training.

**Figure 2: Subjective evaluation**
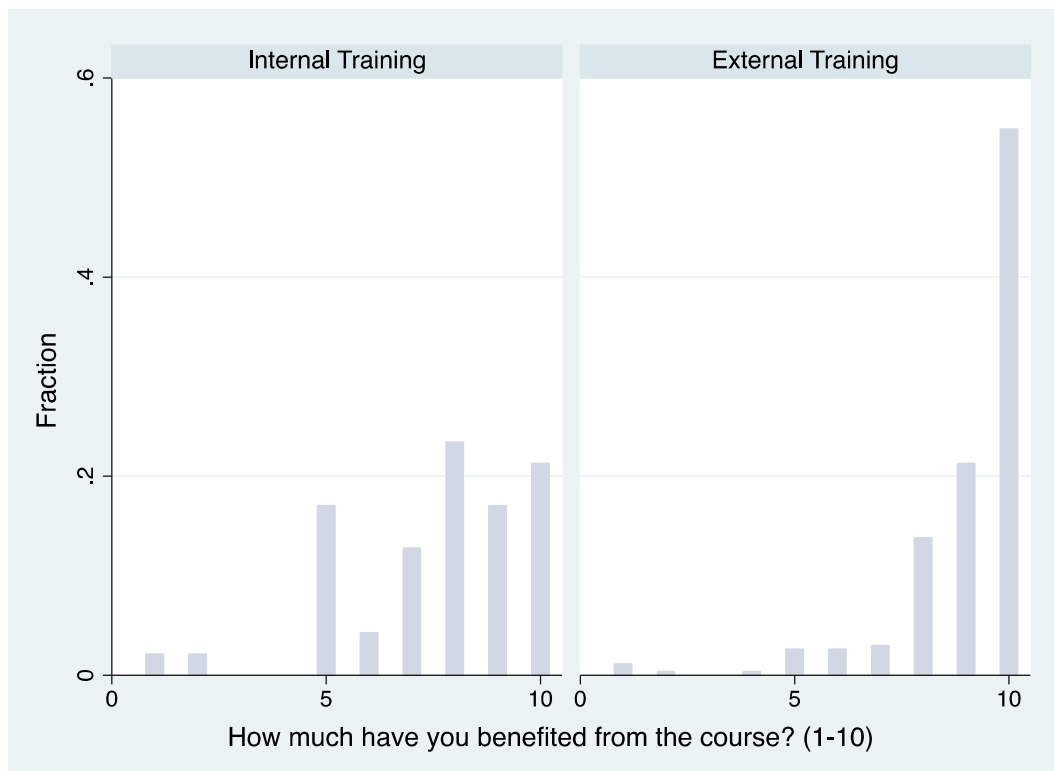
Note: The figure shows the participants' subjective evaluation of how much they benefited from the course, by internal training and external training. For each score on the scale from 1 (not benefited at all) to 10 (benefited a lot), the figures show the share of participants reporting this score.

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Figure 3: Business knowledge
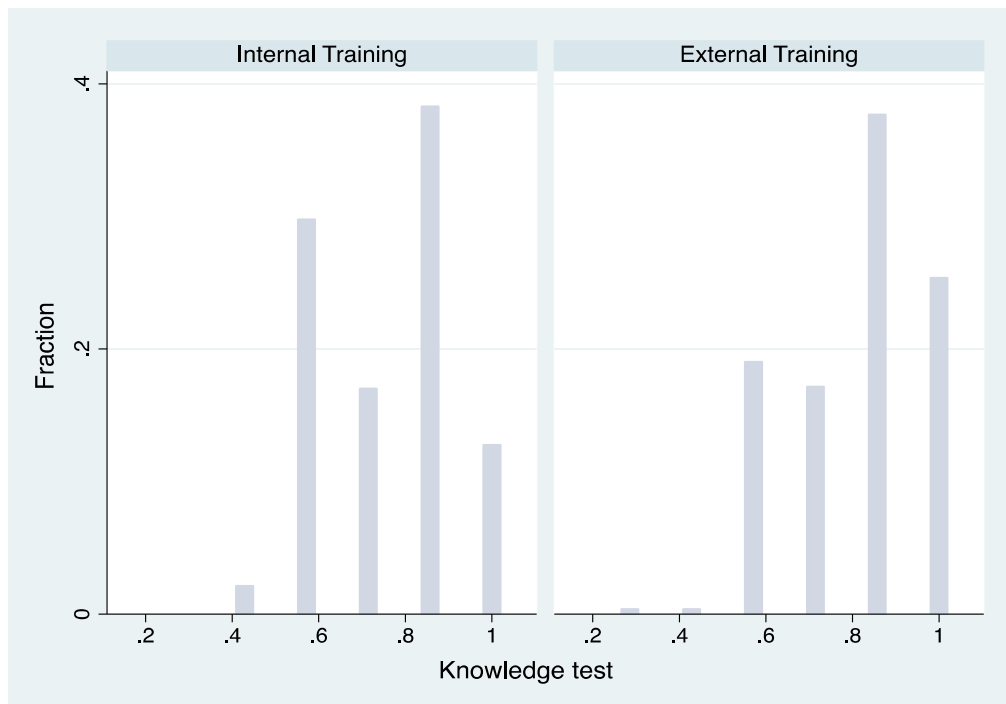
Note: The figure shows the participants' performance on a business knowledge test, by internal training and external training. For each score on the test, measured as percentage correct answers, the figure shows the share of participants obtaining this score.

Figure 4: Self-reported happiness
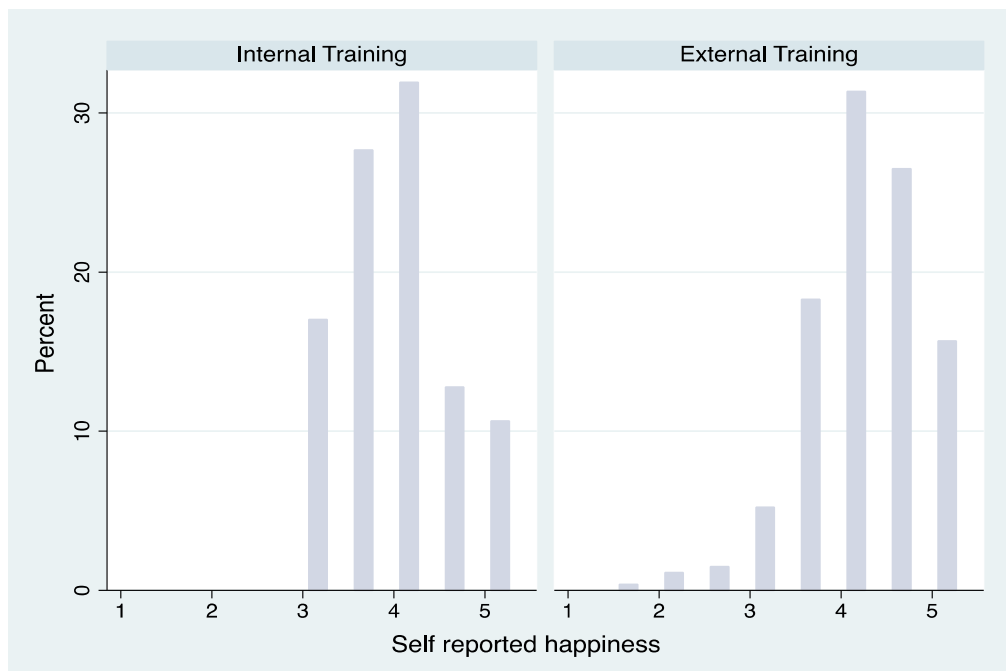
Note: The figure shows the participants' happiness, by internal training and external training. Happiness is the average of the self-reported happiness on four dimensions. 11 entrepreneurs did not report on one of the four dimensions, and for them we use the average in the other three dimensions. For each score on the scale from 1 (very unhappy) to 5 (very happy), the figure shows the share of participants reporting this score.

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APPENDIX

Table A1: Treatment–control balance (follow-up sample)

	(1)	(2)	(3)	(4)
	Total	Internal Group	External Group	Difference
Female	0.60	0.60	0.61	-0.01
	(0.03)	(0.07)	(0.03)	(0.08)
Age	39.12	37.00	39.49	-2.05*
	(0.45)	(1.04)	(0.54)	(1.35)
Loan Size	746.03	729.79	748.88	-19.09
	13.42	(34.93)	(14.55)	(37.70)
Education	7.83	7.96	7.80	0.16
	(0.12)	(0.35)	(0.13)	(0.34)
Branch	0.49	0.46	0.50	-0.03
	(0.03)	(0.07)	(0.03)	(0.08)
Observations	315	47	268	

*Note: The table reports average values. Female is a dummy variable with a value of one if the participant is a female. Age is expressed in number of years. Loan size denotes the loan size in PRIDE in 2008, in thousand Tanzanian shillings. Education is the number of years of schooling. Branch is a dummy variable with the the value one if the branch is Magomeni and zero if it is Buguruni. Standard errors clustered at loan group in parentheses. *$p<0.10$, ** $p<0.05$, *** $p<0.01$.*

Table A2: Attrition balance

	(1)	(2)	(3)	(4)
	Total	Interviewed sample	Attrition sample	Difference
Female	0.61	0.60	0.70	0.10
	(0.03)	(0.03)	(0.08)	(0.09)
Age	39.20	39.12	39.94	-0.82
	(0.45)	(0.48)	(1.10)	(1.51)
Loan Size	753.01	746.03	817.65	-71.61*
	12.74	(13.42)	(39.49)	(42.85)
Education	7.82	7.83	7.77	0.06
	(0.12)	(0.12)	(0.35)	(0.39)
Branch	0.49	0.49	0.50	-0.01
	(0.03)	(0.03)	(0.09)	(0.09)
Observations	349	315	34	

*Note: The table reports average values. Female is a dummy variable with a value of one if the participant is a female. Age is expressed in number of years. Loan size denotes the loan size in PRIDE in 2008, in thousand Tanzanian shillings. Education is the number of years of schooling. Branch is a dummy variable, which takes the value one if the branch is Magomeni and zero if it is Buguruni. Standard errors are in parentheses: *$p<0.10$, ** $p<0.05$, *** $p<0.01$.*

Table A3: Predicting attrition

	(1)	(2)
Internal Training	-0.128**	-0.130**
	(0.052)	(0.052)
Education		0.001
		(0.007)
Age		-0.001
		(0.001)
Female		-0.035
		(0.031)
Loan Size		-0.000
		(0.000)
Branch		-0.014
		(0.032)
Constant	0.924***	1.067***
	(0.017)	(0.095)
Observations	349	349

*Note: The dependent variable is a dummy variable with the value of one if the client was reached in the follow-up study. Education is the number of years of schooling. Age is expressed in number of years. Female is a dummy variable with a value of one if the participant is a female. Loan size denotes the loan size in PRIDE in 2008, in thousand Tanzanian shillings. Branch is a dummy variable with the value one if the branch is Magomeni and zero if it is Buguruni. Standard errors clustered at loan group in parentheses. * p<0.10, ** p<0.05, *** p<0.01.*

Table A4: Bounds analysis

	(1) Lower Lee	(2) -0.20 S.D	(3) -0.10 S.D	(4) -0.05 S.D	(5) Unadj.	(6) +0.05 S.D	(7) +0.10 S.D	(8) +0.20 S.D	(9) Upper Lee
Benefit	-1.271***	-1.300***	-1.355***	-1.383***	-1.417***	-1.438***	-1.466***	-1.521***	-1.920***
	(0.296)	(0.228)	(0.227)	(0.226)	(0.286)	(0.226)	(0.225)	(0.226)	(0.265)
Max Benefit	-0.253***	-0.298***	-0.311***	-0.317***	-0.322***	-0.329***	-0.335***	-0.347***	-0.412***
	(0.064)	(0.053)	(0.053)	(0.053)	(0.061)	(0.053)	(0.053)	(0.053)	(0.062)
Knowledge	-0.028	-0.045**	-0.050**	-0.052**	-0.056**	-0.056**	-0.058***	-0.063***	-0.095***
	(0.027)	(0.022)	(0.022)	(0.022)	(0.026)	(0.022)	(0.022)	(0.022)	(0.024)
Happiness-Index	-0.088	-0.185**	-0.202**	-0.210**	-0.208**	-0.227***	-0.236***	-0.253***	-0.379***
	(0.105)	(0.087)	(0.087)	(0.087)	(0.104)	(0.087)	(0.087)	(0.087)	(0.106)
Observations	278	349	349	349	315	349	349	349	278

*Note: The table reports bounds analysis for Internal Training variable in Table 3 and Table 4, using various assumptions about the treatment effect for attriters. Each reported coefficient is from a separate regression. Columns (1) and (9) report the lower and upper Lee-bound (Lee, 2009). Columns (2)-(4) and (6)-(8) impute to the lower (upper) bound the mean minus (plus) a specified standard deviation multiple of the observed external training group distribution to the non-responders in the external training group, and the mean plus (minus) the standard deviation multiple of the observed internal training group distribution to non-responders in the internal training group (Kling et al., 2007). Column (7) reports the unadjusted estimates. Benefit is the self-reported score of how much the entrepreneur benefited from the course (1-10), Max Benefit is a dummy variable, taking the value one if the entrepreneur reported the top score (10). Knowledge is the percentage of correct answers in the knowledge test. Happiness is the average of the self-reported happiness on four dimensions (1-5). Bootstrapped standard errors (500 reps; unadjusted estimates are not bootstrapped) clustered at the loan group. * p<0.10, ** p<0.05, *** p<0.01*