Is There a Cost-Effective Means of Training Microenteprises?*

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Abstract

Despite billions of dollars spent by policy institutions and academics, very few programs designed to increase managerial skills among microenterprises are cost-effective. In this short paper, we highlight a mentorship program designed to provide managerial skills to Kenyan microenterprises and provide a detailed cost-benefit analysis. For each dollar spent on a treated firm, average profit increases by 1.73 USD, and the result stems from both a higher program impact and lower cost relative to existing training programs. Motivated by the increased cost-effectiveness, we then the compare the program to the large literature focusing on "supply-side" interventions designed to increase managerial capacity in small firms, and highlight particular margins on which mentorship improves on classroom training and also where training should focus.

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1 Introduction

All over the developing world, microenterprise operation is a dominant form of employment, especially among the most vulnerable members of society. These businesses tend to operate at a small scale, with few workers and little inventory, and generate low levels of profit. Recent work has highlighted the lack of managerial skills as an important constraint to microenterprise growth (Bloom and Van Reenen, 2007; Bruhn et al., 2010). In response, business training has become one of the most ubiquitous forms of microenterprise support, with substantial resources devoted from both policymakers and governments. However, in a review of recent evaluations, McKenzie and Woodruff (2014) find that almost none have changed microenterprise profit. In fact, most cannot pass a simple cost-benefit test (Blattman and Ralston, 2015). This result is driven by both costs and benefits. First, training is expensive, with costs in some programs over $100 per student. This implies a high risk to the implementing agency: developing and implementing a training program is an expensive proposition, without any guarantee of results. Second, the majority of these programs have not been able to identify any statistically significant changes in microenterprise profitability, independent of the training price.

In this short paper we conduct a cost-benefit analysis of a new training scheme ("mentorship") implemented in a randomized controlled trial in Dandora, Kenya. We randomized young, female microenterprise owners into three groups: a mentorship program in which each owners was paired with a more successful Dandoran business owner, a business training program, and a pure control group. We find that the mentorship program compares favorably to training (both our program and others in the literature) and other supply-side microenterprise interventions. The results are driven by both the cost and benefit channels. Our mentorship program has a lower implementation cost relative to classroom training, and increases microenterprise profit while training does not.

2 Cost-Benefit Analysis

Brief Description of Treatments Before the cost-benefit analysis, we give a brief overview of the experimental design.[1] In May 2014, we conducted a survey of 3,290 randomly selected businesses in Dandora, Kenya. We then drew our sample from business owners younger than 40 with fewer that five years experience. We also limited attention to women, as 71 percent of these "young" businesses were operated by women and we wished to restrict sample heterogeneity. In October 2014, we then divided this group randomly across three treatment arms: a control group, a group given access to a standard microenterprise training class, and those who received a mentor. The sample size for each group was 119, 129, and 124, respectively. A mentor in this case is a female business owner who was drawn from the right tail of the profit distribution in our baseline survey. The mentor and mentee were instructed to meet and discuss their business four times over the course of a month.[2] All

[1] The main experimental results and details are in Brooks et al. (2017). Please see this paper for a more detailed discussion.

[2] We find that nearly half we still meeting one year after the program ended. See Brooks et al. (2017) for a larger discussion on the impact of continued meeting.

three groups received 4500 Ksh as incentives to continue participating in the program, as there were 6 follow-up surveys over the course of a year. Surveys were conducted 1, 2, 3, 4, 7, and 12 months after the initial treatment.

Cost-Benefit Analysis The average experimental treatment effects pooled over survey waves are in Table 1, along with the 95 percent confidence interval and mean control profit. Average weekly profit among the control group is 18.29 USD, compared to 22.37 USD for mentees, implying a treatment effect of 4.08 USD. The treatment effect for the training program is 0.74 USD.[3] The treatment effect for mentees is statistically significant at the 1 percent level, while the class effect is statistically insignificant. In Brooks et al. (2017) we find that the effect fades over time, so in our cost-benefit analysis we assume that no additional benefits accrue to either treatment later than one year post-treatment.

Table 1: Treatment Effect on Weekly Profit

	Pooled treatment effect (USD)	**Annualized Effect** (USD)
Mentee	4.083 (0.722, 5.967)	212.334 (75.988, 348.680)
Class	0.741 (-2.794, 2.870)	38.552 (-107.179, 184.282)
Control Mean	18.287	950.903

Annualizing this result, the total benefit of the program is 212.33 USD for mentorship and 38.55 USD for classroom training. Here, we have the first reason that mentorship is more cost effective that training: the benefit is substantially higher.

Since mentorship provides a relatively large change in profit, we next turn to the cost of the program. Total program costs – net of the direct costs of the follow-up surveys – are provided in Table 2. Even though mentorship provides substantially larger benefits than training, the last two lines of Table 2 show that it was also substantially cheaper to implement. On a per-person basis, classroom training was over four times as expensive: 41.10 USD per student compared to only 9.85 USD per mentee.

Table 2: Total Program Costs

Cost	**USD**
Baseline Survey	22,216
Orientation	1,480
Participation incentives	18,295
Class operation	5,302
Mentor incentives	1,355

[3]We denominate all the results in USD, using an exchange rate of 101.5 Ksh = 1 USD.

However, to compute impact per dollar spent we require a measure of total cost per person, which as not as immediately obvious as computing the direct cost of the class or mentor. In particular, it depends on how we share the cost of the baseline survey across treatment arms. We include three cost sharing assumptions in Table 3. The first does not include the baseline cost. This assumes that we could identify mentors without the baseline survey, and therefore provides an upper bound on cost effectiveness. The second cost sharing assumption is our baseline. It splits the cost of the baseline survey across all three arms. This measure is preferred for two reasons. First, the survey is used to define the treatment groups as well as mentors. Therefore, it is reasonable to split it across all three groups. Second, the number of mentor-mentee pairs was constrained by the need for class and control groups. Put differently, had we only been interested in the mentorship program, we could have had three times as many mentee-mentor pairs with no additional cost. Thus, the mentorship group we select should only bare one-third of the cost. However, for the sake of completeness, we also include an extreme cost-sharing scenario in column three that assigns the entire 22,216 USD baseline survey cost to the mentorship program. This assumption is much too extreme. It assumes we could costlessly target and recruit young female-operated businesses without the baseline survey and that we required a 3,290 firm survey to recruit 124 mentors, which we view as unreasonable. We include it here as an absolute lower bound on the cost effectiveness of the program.

Table 3: Cost-Benefit Calculation Under Different Cost Assumptions

	(1)	(2)	(3)
	No baseline cost	Baseline cost divided evenly	Baseline cost only to mentees
Per-Person Cost			
Control	53.33	115.56	53.33
Class	94.11	151.51	94.11
Mentee	63.01	122.73	242.17
Δ Profit per Dollar Spent			
Class	0.410	0.254	0.410
	(-1.139, 1.958)	(-0.707, 1.216)	(-1.139, 1.958)
Mentee	3.370	1.730	0.877
	(1.206, 5.534)	(0.619, 2.841)	(0.314, 1.440)

First, note that implementing the mentorship program costs only slightly more than implementing the control group, as both groups receive cash participation incentives. In cost scenario one, the average mentorship cost is only 18 percent higher than the control, compared to 76 percent higher for the class. That number drops to 6 percent under scenario two for mentees, and 31 percent for the class. Thus, the net cost of mentorship is quite small relative to control. When combined with the annualized benefit, our baseline results (cost scenario 2) show that the mentorship program returns 1.73 USD for every dollar spent on

the program, compared to 0.25 USD for training. Even when we attribute the entire baseline survey cost to mentees, the program still returns 0.88 USD per dollar spent, higher than the point estimate for both our class treatment and the estimates in many other training studies summarized in McKenzie and Woodruff (2014).

3 Discussion

3.1 Benefits of Mentorship Design

Blattman and Ralston (2015) state that "skills-centric programs seem difficult to get right, clearly at great cost." The cost of standard training implies great risk to an implementing organization. With little evidence that training increases microenterprise profit, there is a high likelihood of wasting resources. This limits the ability of policy organizations and researchers to experiment with program design and tease out critical skills to increase microenterprise growth. At only 25 percent of training cost, mentorship allows a low cost opportunity to do exactly this, and we return to some lessons learned and critical channels in Section 3.2.

In addition to its low cost, mentorship has the benefit of not being uniform. Mentor-mentee pairs define the problems facing the mentee business, and the methods through which they will discuss or tackle them. A corollary of this design feature is that mentorship allows for heterogenous "treatments" within one program. One mentee can focus on supplier negotiations while another can focus on advertising, both within the mentorship program. This is important in light of recent work by Bruhn et al. (2013), who highlight the heterogeneity of management deficiencies across Mexican SMEs. In contrast, classroom training requires defining deficient skills *ex ante*, a task again complicated by the high cost of training.

3.2 What can we learn about designing training programs?

We lastly consider underlying changes in mentee business practices. Since mentorship enforces no skills *ex ante*, finding changes in skills covered by the training program is strong evidence that training covers the correct skills but uses ineffective delivery methods. Alternatively, finding other business practice changes suggests that training may not be focusing on the correct skills. We find that the key underlying channels generated in the mentorship program were on the cost side. Mentees were significantly more likely to switch suppliers, and doing so afforded them a lower unit cost of inventory. There are two implications that can be taken from this. First, conditional on implementing a microenterprise training program, focusing on cost channels seems a more fruitful avenue to increase profit. However, this is subject to an important caveat. A key characteristic of these results is that implementing the observed changes requires a relatively deep knowledge of the Dandoran economy and market structure. Training classes, on the other hand, are designed to be easily replicable, which necessitates a focus on skills whose benefits are independent of the market in which they are employed. To the extent that our results rely on this localized information, it is unlikely that training classes as currently designed can provide these benefits. However, as discussed in the previous section, cost effective managerial skill interventions need not directly link

replicability with uniformity of the skills covered.

Of course, these statements apply only to microenterprises. Bloom et al. (2013) find important changes in both skills and profit in larger Indian textile firms when given access to McKinsey consultants. If low demand among microenterprises stifles the impact of any changes in firm quality (e.g. production techniques, marketing, etc.), then this suggests policy makers and governments should focus training resources on relatively larger firms and not microenterprises. The evidence is consistent with this idea. Atkin et al. (2016), for example, find changes in production quality among small Egyptian rug makers, but only when coupled with an increase in demand. An important avenue for future research is therefore to better understand how different variations of managerial skill development programs affect different types and sizes of firms. This will hopefully lead to a more effective and cost-effective suite of programs to foster business growth in the developing world.

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