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Is There a Cost-Effective Means of Training Microenterprises?

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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. This short paper highlights a mentorship program designed to provide managerial skills to Kenyan microenterprises, and it provides a detailed cost-benefit analysis. For each dollar spent on a treated firm, average profit increases by 1.63 USD; the result stems from both a higher program impact and lower cost relative to existing training programs. Motivated by this increased cost-effectiveness, the study then compares the program to the large literature focusing on "supply-side" interventions designed to increase managerial capacity in small firms, and it highlights particular margins on which mentorship improves on classroom training and also where training should focus.

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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, Karlan, and Schoar 2010). In response, business training has become one of the most common forms of microenterprise support, with substantial resources devoted from both policy makers 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.

This short paper conducts a cost-benefit analysis of a new training scheme ("mentorship") implemented in a randomized controlled trial in Dandora, Kenya. The study randomized young, female microenterprise owners into three groups: a mentorship program in which each owner was paired with a more

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Table 1. Treatment Effect on Weekly Profit

	Pooled treatment effect (USD)	Annualized effect (USD)
Mentee	4.16	199.84
	(2.26, 6.06)	(108.68, 291.00)
Class	0.95	45.62
	(−0.92, 2.82)	(−44.00, 135.24)
Control mean	18.11	1231.77

successful Dandoran business owner, a business-training program, and a pure control group. It is found that the mentorship program compares favorably to training (both this study's program and others in the literature) and other supply-side microenterprise interventions. The results are driven by both the cost and benefit channels. The mentorship program has a lower implementation cost relative to classroom training, and increases microenterprise profit while training does not.

1. Cost-Benefit Analysis

Brief Description of Treatments

Before the cost-benefit analysis, this article gives a brief overview of the experimental design.[1] In May 2014, the study conducted a survey of 3,290 randomly selected businesses in Dandora, Kenya. It then drew its sample from business owners younger than 40 with fewer than 5 years of experience. The study also limited its attention to women, as 71 percent of these "young" businesses were operated by women, and it was desirable to restrict sample heterogeneity. In October 2014, the study 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 sizes for each group were 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 the baseline survey. The mentor and mentee were instructed to meet and discuss their business four times over the course of a month.[2] All three groups received 4500 Ksh as incentives to continue participating in the program, as there were seven follow-up surveys over the course of a year. Surveys were conducted 1, 2, 3, 4, 7, 12, and 17 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. The study focuses on the average effect over the first 12 months, as the effect is zero by month 12. The treatment effects are 422.57 Ksh and 96.47 Ksh for mentees and class, respectively. These figures were translated into USD at the exchange rate of 101.5 Ksh = 1 USD. The treatment effect for mentees is statistically significant at 5 percent, while the class effect is statistically insignificant. It was found that the effect fades over time, so in the cost-benefit analysis it is assumed that no additional benefits accrue to either treatment later than one year post-treatment.

Annualizing this result, the total benefit of the program is 199.84 USD for mentorship and 45.62 USD for classroom training. This is the first reason that mentorship is more cost-effective than training: the benefit is substantially higher. Consistent with previous literature summarized in McKenzie and Woodruff (2014) and Blattman and Ralston (2015), training generates no effect on profit. Mentorship, on the other generates an effect that is 438 percent larger than training.

1   The main experimental results and details are Brooks, Donovan, and Johnson (2018). Please see this paper for a more detailed discussion of the field experiment and results.
2   The study finds that nearly half were still meeting one year after the program ended. See Brooks, Donovan, and Johnson (2018) for a larger discussion on the impact of continued meeting.

Table 2. Total Program Costs

Cost	USD
Baseline survey	22,216
Orientation	1,480
Participation incentives	18,295
Class operation	5,302
Mentor incentives	1,222

Table 3. Cost-Benefit Calculations Under Different Cost Assumptions

	No baseline cost (1)	Baseline cost divided evenly (2)	Baseline cost only to mentees (3)
Per-person cost			
Control	53.16	112.89	53.16
Class	94.26	153.98	94.26
Mentee	63.01	122.73	242.17
Δ in profit per dollar spent			
Class	0.48	0.30	0.48
	(−0.47, 1.43)	(−0.29, 0.89)	(−0.47, 1.43)
Mentee	3.17	1.63	0.83
	(0.89, 4.62)	(0.89, 2.37)	(0.45, 1.20)

Since mentorship provides a relatively large change in profit, the study next turns 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 rows 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.

However, to compute impact per dollar spent the study requires a measure of total cost per person, which is not as immediately obvious as computing the direct cost of the class or mentor. In particular, it depends on how the cost of the baseline survey is shared across treatment arms. The study includes three cost-sharing assumptions in table 3. The first does not include the baseline cost. This assumes that it is possible to identify mentors without the baseline survey, and therefore it provides an upper bound on cost-effectiveness. The second cost-sharing assumption is the 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 the study only been interested in the mentorship program, it could have had three times as many mentee-mentor pairs with no additional cost. Thus, the mentorship group that is selected should only bear one-third of the cost. However, for the sake of completeness, the study also includes an extreme cost-sharing scenario in column 3 that assigns the entire 22,216 USD baseline survey cost to the mentorship program. This assumption is much too extreme. It assumes that it is possible to costlessly target and recruit young female-operated businesses without the baseline survey and that a 3,290-firm survey was required to recruit 124 mentors, which the study views as unreasonable. It is included here as an absolute lower bound on the cost-effectiveness of the program.

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 1, the average mentorship cost is only 19 percent higher than the control, compared to 77 percent higher for the class. That number drops to 9 percent under scenario 2 for mentees, and 36 percent for the class. Thus, the

net cost of mentorship is quite small relative to control. When combined with the annualized benefit, the baseline results (cost scenario 2) show that the mentorship program returns 1.63 USD for every dollar spent on the program, compared to 0.30 USD for training. In all three cases, a t-test rejects the hypothesis that the classroom training cost-effectiveness is larger than mentorship cost-effectiveness. Even when the entire baseline survey cost is attributed to mentees, the program still returns 0.83 USD per dollar spent, higher than the point estimate in many other training studies summarized in McKenzie and Woodruff (2014).

2. Discussion

Benefits of Mentorship Design

Blattman and Ralston (2015) state that "skills-centric programs seem difficult to get right, clearly at great cost." Indeed, 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 experiment with different delivery methods and topics in a way that would significantly less expensive than standard training classes. The next section returns to some lessons learned and critical channels.

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. One mentee, for instance, can focus on supplier negotiations while another can focus on advertising, both within the mentorship program. This allows the program to be portable in the same way as a training class, while still allowing heterogeneous "treatments," both across locations and across individual participants in the same location. This is important in light of recent work by Bruhn, Karlan, and Schoar (2018), who highlight the heterogeneity of management deficiencies across Mexican small-to-medium enterprises. In contrast, classroom training requires defining deficient skills ex ante, a task again complicated by the high cost of training.

What can be Learned about Designing Training Programs?

Finally, the study considers 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. This study finds 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 this study's 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, Khandelwal, and Osman (2017), 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.

References

Atkin, D., A. Khandelwal, and A. Osman. 2017. "Exporting and Firm Performance: Evidence from a Randomized Trial." *Quarterly Journal of Economics* 132 (2): 551–615.

Blattman, C., and L. Ralston. 2015. *Generating Employment in Poor and Fragile States: Evidence from Labor Market and Entrepreneurship Programs*. Working Paper. Columbia University, New York, NY. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2622220.

Bloom, N., and J. Van Reenen. 2007. "Measuring and Explaining Management Practices Across Firms and Countries." *Quarterly Journal of Economics* 122 (1): 1351–1408.

Bloom, N., B. Eifert, A. Mahajan, D. McKenzie, and J. Roberts. 2013. "Does Management Matter? Evidence from India." *Quarterly Journal of Economics* 128 (1): 1–51.

Brooks, W., K. Donovan, and T. Johnson. 2018. "Mentors or Teachers? Microenterprise Training in Kenya." *American Economic Journal: Applied Economics* 10 (4): 196–221.

Bruhn, M., D. Karlan, and A. Schoar. 2010. "What Capital is Missing in Developing Countries." *American Economic Review Papers and Proceedings* 100 (2): 629–33.

———. 2018. "The Impact of Consulting Services on Small and Medium Enterprises: Evidence from a Randomized Trial in Mexico." *Journal of Political Economy* 126 (2): 635–87.

McKenzie, D., and C. Woodruff. 2014. "What are We Learning from Business Training and Entrepreneurship Evaluations around the Developing World?" *World Bank Research Observer* 29 (1): 48–82.