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# Can Entrepreneurial Activity be Taught? Quasi-Experimental Evidence from Central America

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Summary. — Business training is a widely used development tool, yet little is known about its impact. We study the effects of such a business training program held in Central America. To deal with endogenous selection into the training program, we use a regression discontinuity design, exploiting the fact that a fixed number of applicants are taken into the training program based on a pre-training score. Business training significantly increases the probability that an applicant to the workshop starts a business or expands an existing business. Results also suggest gender heterogeneity as well as the presence of financial constraints.

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#### 1. INTRODUCTION

Entrepreneurial activity is important for development (e.g., Baumol, 1968): Entrepreneurs implement new business ideas, or adopt profitable ideas from others to local circumstances to start new businesses, or they experiment with new materials and processes to expand their business. Inevitably some fail. A process of creative destruction, as described famously by Schumpeter (1911), leads to progress. Recognizing this, development organizations increasingly use business training as a development tool. On the other hand, many classic theories of entrepreneurial activity treat entrepreneurial ability as exogenous (e.g., Lucas, 1978). Thus it is unclear if a business training program that trains individuals that do not have a business (and may, therefore, not have the entrepreneurial ability) can even have the most immediate intended effect, namely start-up of a business.

In this paper we exploit the specifics of the training program that we study to implement a quasi-experimental research design (a regression discontinuity design) to study whether entrepreneurial activity can be taught, in particular whether business training can lead to increasing numbers of businesses started or expanded. We will study this question by analyzing the results of business training programs that the NGO TechnoServe held in Central America during 2002–05. The program is intended for both individuals who wish to start a business, as well as for those who already have a business. Those individuals with existing businesses have about 10 employees on average. Thus, unlike some other programs, this program targets businesses of a size beyond that of household enterprises.

It is now recognized that small and medium sized enterprises (SMEs) can play a significant role in the development process. A particularly well-known proponent of entrepreneurship through different phases of development has become the Global Entrepreneurship Monitor (GEM) consortium, which

documents and analyzes the relationship between entrepreneurship and development (e.g., Bosma & Levie, 2010). This consortium works with a model (Bosma, Acs, Autio, Coduras, & Levie, 2009) that considers how the importance of various environmental conditions for entrepreneurship changes at different phases of economic development. At the same time, according to this particular model, "the relative importance of entrepreneurship education and training increases as economies develop economically" (Coduras Martínez, Levie, Kelley, Sæmundsson, & Schøtt, 2010, p. 12).

Obstacles that entrepreneurs face may be external and apply to all entrepreneurs in an economy, such as regulations (e.g., Djankov, La Porta, Lopez-de-Silanes, & Shleifer, 2002), infrastructure (e.g., Datta, 2008), or macroeconomic uncertainty and property rights (e.g., Svensson, 1998). In these cases, action at the macro level might be necessary. However, many constraints are idiosyncratic to the (potential) entrepreneur. For example, individual entrepreneurs may not be willing to take risks. Some may simply not know how to navigate regulations and how to deal with other formal aspects of running a business, or how to deal with banks to finance their new business or expand their existing business. "Entrepreneurial spirit" appears often to be seen as inherent in individuals, yet even for those who possess this entrepreneurial drive, they may not actually start a business or expand an existing business because of the myriad of potential obstacles. However, some of the idiosyncratic obstacles could potentially be overcome through business-specific education of (potential) entrepreneurs. Theoretically, any of the central aspects of

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entrepreneurship—the GEM model for example identifies three main components, namely attitudes, activity and aspirations—could be affected by training and lead to business launch or expansion of an existing business. This paper's goal is to investigate whether this is possible.

We study the effect that a specific training program implemented by an NGO in a large number of countries has on entrepreneurial activity, namely on business start-up and business expansion. In addition, another feature of the program, the quasi-experimental injection of substantial amounts of capital into some businesses, also allows us to investigate whether entrepreneurs are financially constrained, and the extent to which financing constraints hinder investment. Finally, we also investigate whether the effect of training and financing varies by gender. Although these questions will be studied in the context of one particular organization, the broader goal of this paper is to shed some light on the larger question of whether entrepreneurial ability is exogenous and inherent to a firm owner or to what extent and how it can be shaped by training.

TechnoServe supports SMEs in the form of the so-called "Business Plan Competitions", which are intended to help individuals who are interested in setting up a new business to gain the necessary skills, and to help existing small and medium-scale entrepreneurs who wish to significantly expand their businesses improve their skills and entrepreneurial abilities. In each competition, there is first a preliminary screening process. A fixed number of applicants are selected for the program, which then receive the training. At the end of this phase, applicants submit a first draft of their business plan.

Based upon a review by a small panel of "judges", that is individuals who are knowledgeable about business, which may include for example business owners or business consultants, a smaller group is selected to continue to the final phase, where they receive additional support and business development services to complete their business plan. Note that the judges typically come from large companies so that they are not potential competitors to business plan competition participants (who are seeking to launch/expand smaller firms) and that the judges are not involved in any of the training before the presentations. The finalized plans are then again evaluated by judges, and a fixed number of the top plans receive a financial prize of between US\$6,000 and US\$15,000 (depending on country and year), receipt of which is conditional on investment in the business, plus some additional business development services.

Existing evaluations of similar programs in the context of developing countries cannot answer the key question that is at the core of any program evaluation: How would the entrepreneur have done if he or she had not gone through the training workshop? The usual approaches of finding comparison groups are based on observable characteristics. However, we can expect self-selection of entrepreneurs into a program based on unobservable characteristics, as for example unobserved business opportunities. If these same (unobserved) characteristics also determine the future success and self-selection is not taken into account in the research design, then estimates of the treatment effects will be biased. Similarly, the purposeful assignment of individuals to a training program, for example of unemployed individuals, would lead to biased estimates if it is not properly controlled for.

To overcome the econometric problems of self-selection and purposeful program placement, we take advantage of one particular feature of the program under study. Applicants have to undergo a standardized evaluation process in which a score is determined that is supposed to characterize the potential entrepreneurial ability of an applicant. The sole decision crite-

rion for access to the workshop is this score. If the score is above a cutoff, the applicant is accepted to the workshop; otherwise he/she is rejected. This feature can be used to study the effect of program participation on outcomes based on a regression discontinuity design, by comparing rejected and accepted applicants.

We focus on the first-order impact that a business development program of the kind that we study attempts to achieve, namely the question whether training actually induces participants to start entrepreneurial activities, that is to start up a business or significantly expand an existing one. We view these outcomes as key to the above cited literature. If entrepreneurial skills are rather fixed, then there should be no significant effect of a training program on start-up or expansion of businesses and consequently there cannot be a significant effect on secondary outcomes, such as sales, production, job creation etc. Thus, establishing whether business development programs that aim at creating new or larger businesses are successful in this primary goal is an important first step in this research agenda.

Our findings indicate that the program is successful in promoting entrepreneurial activity. We find economically important and statistically significant changes in the probability that individuals open a new business or expand an existing business that is due to participation in the full training program. Looking at the different stages of the program, we find that the first round seminar-based training seems to affect the expansion of businesses more than the launching of new businesses. On the other hand, the second round, in which the business plan is developed more fully with more one-on-one assistance, affects more the launching of businesses. Similarly, the last round treatment, which is the receipt of prize money, has significant effects on launching, but smaller and less significant effects on expansion of businesses.

The research is of immediate practical relevance. The development community is increasingly focusing on promoting Private Sector Development, recognizing that entrepreneurship is a key building block of sustained poverty-reducing economic growth. Yet, despite an emerging body of work that studies the effects of business training, for example Coduras Martínez et al. (2010), Bosma and Levie (2010), and Karlan and Valdivia (in press), there is still much to be learned about what works in scalable enterprise-based solutions to poverty.

The paper proceeds as follows. We first provide background on the program that we study and the data that we use. We then investigate whether the discontinuity in program participation that we wish to exploit holds. After that, we introduce the regression discontinuity design in the context of our application. Section 5 then presents the main results, as well as robustness checks. In that section we also discuss the role of gender. The final section concludes.

## 2. THE TECHNOSERVE BUSINESS PLAN COMPETITIONS

This section provides some background about the business plan competitions that the NGO TechnoServe runs. A more detailed description is given in the appendix, which also includes a figure to illustrate the timeline of a competition (Table 11). Since 2002 TechnoServe organizes Business Plan Competitions to promote entrepreneurship. These competitions provide training to both nascent entrepreneurs seeking to start a new business as well as to entrepreneurs with existing businesses that hope to undertake a significant expansion into a new product or market.

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