Research Proposal: Identifying and Spurring "Gazelles" Evidence from a Government-backed Business Accelerator in Colombia.

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The high positive skeweness in the growth distribution of firms is a well-documented fact in the economics literature.[1] High-growth young firms, typically referred to as "*gazelles*", disproportionately contribute to employment growth relative to the tiny fraction of the overall firm population they represent. Prior work shows that financial constraints can partially explain this skewness. For example, Mckenzie (2017) shows there are constrained entrepreneurs with the ability to grow their businesses beyond a small scale, but that have limited access to finance. Two key policy questions that remain unexplored are whether there are potential gazelles that are constrained in their access to *entrepreneurial capital* (rather than financial capital), and if so, whether policy can identify such businesses and overcome this type of constraint to their growth. Entrepreneurial capital can be defined as the organizational abilities to manage an effective operations scale-up in emerging ventures and is analogue to managerial capital in established firms. However, little rigorous empirical work has been done to understand the nature of this type of capital, and to document its impact on venture performance (for an exception see Gonzalez-Uribe and Leatherbee, 2017).

We investigate these questions through the context of a business accelerator program ran by a local government in the central west region of Colombia. "ValleE" was launched in 2014 and attracted almost 300 applicants aiming to start a new business or expand an existing young one (0-3 years).[2] Only the top 35 applicants were competitively selected using average scores from an expert panel, where the selection cut-off was pre-determined due to budget restrictions. The winners were chosen to receive "*entrepreneurship schooling*" in the form of business training, access to mentors and visibility, but, *no seed capital*. The budget-based selection rule provides quasi-experimental variation from access to entrepreneurship schooling that enables causal estimation of the program's impact. Two annual follow-up surveys enable tracking the trajectory of impacts, 12 and 24 months after participation.

We have two main set of preliminary findings. First, we find that participation in the business accelerator has large positive impacts on both applicants looking to start new firms as well as those aiming to expand existing businesses. Two years after participation in ValleE, there are increases in sales, profits, and size, including increases of 53% (2.4) in number of workers relative to a baseline average of 4.5 employees per firm (near the selection cut-off) and of 20% in the probability of having 10 employees or more. Participation also led to a delay in firm creation for the applicants looking to start new firms, and to no significant effects in firm survival. The impact results are consistent with prior work on the importance of managerial capital, and the degree to which it is missing in underdeveloped economies. Our focus on high-growth young firms is novel: existing research focuses instead on established firms and often non-scalable, such as local micro enterprises or subsistence

[1] For evidence see Haltiwanger, Jarmin and Miranda, 2016 for US and for developing countries: Ayyagari, Demirguc-Kunt and Maksimovic, 2014.

[2] "ValleE" is operated by the Chamber of Commerce in the city of Cali, and created by the Regional Network of Entrepreneurship in the Valle del Cauca region.

businesses[3]. Our setting differs from traditional training: Training is more varied, non- individualized bootcamps, as well as access to mentors and visibility. Relative to existing work on business accelerators and the impact of entrepreneurial capital on venture performance, our contribution is to estimate the impact of entrepreneurship schooling alone, rather than bundled with seed capital (see: Gonzalez-Uribe and Leatherbee, 2017). This contribution is important: budget constraints are prevalent in government programs, so the question arises whether provision of entrepreneurship schooling alone can also have a sustained impact on venture performance.

Our second set of findings relates to the programs' ability to identify high-growth firms. We find that expert panels identify entrepreneurs with relative high growth potential in a way that adds to the predictive power of observable characteristics recorded in the application forms. Application scores (adjusted for judge fixed-effects) help explain 1.47% in revenue variation, which corresponds to 23% of the explained variation that cannot be attributed to firm and industry characteristics, and which is higher than the 0.92% of variation explained by founder-level observable characteristics such as: age, experience and gender. This finding is useful for policy: expert panels are time consuming, and the worry is that they constitute a waste of resources for local governments who generally rely on the skill of volunteer judges and staff. This finding is consistent with the work of Fafchamps and Woodruff (2016), which documents additional predictive power of panel scores in business plan competitions.

The major challenge of our setting is its small cross-sectional size, as only 35 companies participated in the business accelerator. To address concerns over statistical inference in small samples, we use local randomization methods (Cattaneo, Frandsen, and Titiunik, 2015; Cattaneo, Titiunik, and Vazquez-Bare, 2016). We believe this approach is useful for addressing sample concerns in our paper, and also potentially for other policy settings where there are non-linearities in selection rules but the data typically has a small cross-section. We compare the results using this method and others (matching and regression discontinuity design), and highlight the advantage of using small-sample techniques.

The main limitation of our setting is that we cannot identify which component of entrepreneurial schooling matters (business training, access to mentors or increased visibility), as we have no exogenous variation in the types of services that participants access. On our list of next steps is to conduct a new survey asking, in addition to performance metrics, for entrepreneur's perceptions regarding changes in their business skills, access and use of mentors, as well as visibility. While the information from these surveys cannot be used to identify the channel of effect, it will help us understand in more depth the potential channels at work and the perceived value and dynamism of different dimensions of entrepreneurial capital by participants.

We are applying for a grant in the area of Entrepreneurship. We are seeking funds to employ two RAs that can help us run the third wave of the follow-on surveys. We also plan to conduct further interviews with the staff at ValleE as well as a subgroup of participants. We are thus also seeking funds to conduct field work. Finally, we plan to submit our work to multiple entrepreneurship-related conferences to incorporate feedback, and as such we are also seeking funds to finance associated travel.

[3] see: Bruhn, Karlan and Schoar, 2010; Bloom and Van Reenen, 2010; Karlan and Valdivia, 2010; Dexler, Fischer and Schoar, 2010

Budget Estimate

Item	Cost
Data collection	$ 4,500
In depth interviews	$ 2,000
2 trips to Cali	$ 3,500
Conferences travel	$ 7,500
Total	**$ 17,500**

SANTIAGO REYES ORTEGA

Education

The University of Chicago. Harris School of Public Policy Masters in Public Policy	Chicago, IL 2015
Universidad de los Andes M.Sc. in Economics	Bogotá, Colombia 2012
Universidad de los Andes B.A Economics (Minor in Interdisciplinary Studies about Development)	Bogotá, Colombia 2010

Experience

INTER-AMERICAN DEVELOPMENT BANK [May, 2017 – Present]
Research Fellow – Competitiveness, Technology and Innovation Unit Washington, D.C

- Led the impact evaluation of entrepreneurship programs in Perú and Colombia
- Map the entrepreneurial ecosystem of Lima, Perú.
- Guide the dialogue with the different stakeholders to restructure the entrepreneurship policies in Perú, based on the results of the data analysis.

INTER-AMERICAN DEVELOPMENT BANK [Aug, 2015 – Apr, 2017]
Research Fellow – Research Department Washington, D.C

- Led the data analysis of the flagship publication of the bank. Estimate returns to cognitive and non-cognitive skills in Latin American labor markets. Databases: Household surveys, skill surveys (PIACC and STEP), and Brazil's labor history data (RAIS - 1 billion observations)
- Supervise the team of external researchers and coordinate across three senior researchers within the bank

CHAMBER OF COMMERCE OF CALI [Jan, 2015 – Nov, 2016]
External Advisor (Innovation and Entrepreneurship Unit) Cali, Colombia

- Created a business intelligence team. Designed and implemented processes and a monitoring system for the unit's programs. Managed three people to coordinate the system's operation.
- Led the unit's knowledge creation strategy. Wrote reports and presented the results of the data analysis in topics such as: Impact evaluation of ValleE and ValleImpacta, Mapping the Cali entrepreneurial ecosystem through a social network analysis, risk aversion, cognitive biases of entrepreneurs, and angel investment, among others.

RED NACIONAL DE ÁNGELES INVERSIONISTAS [Jan, 2014 – June, 2015]
Consultant (Fundación Bavaria) Bogotá, Colombia

- Created an algorithm to match entrepreneurs with investors according to business and personal characteristics, as well as risk profiles. (Tenfold increase in deals closed in the first year)
- Designed and implemented the processes to select, monitor and evaluate participating entrepreneurs.
- Presented research results to partner organizations such as the Inter-American Development Bank and iNNpulsa. Upon invitation, I presented this project at the Angel Capital Association Summit in 2016.

INNOVATIONS FOR POVERTY ACTION [Oct, 2011 – Jul, 2013]
Project Associate (Small and Medium Enterprises Initiative) Bogotá,

Colombia

- Managed research projects involving randomized control trials (RCTS) for SMEs in Colombia

- Coordinated with partners and donors to ensure the proper implementation of impact evaluation projects. Performed data analysis for the principal investigators
- Led the organization expansion strategy in Colombia, helping to achieve a partnership with the economics faculty of Universidad de los Andes

GARCÍA Y RIVERA S. en C. [Oct, 2010 – Dec, 2011]
Impact Evaluation Consultant Bogotá, Colombia

- Evaluated the Impact of Coffee Production in the Social-Economic Development of Colombian Municipalities (1993-2005) using a propensity score matching and difference-in-differences.
- Led the data analysis of the Misión Ciudades project, along with the National Planning Department of Colombia.

OPORTUNIDAD ESTRATÉGICA [Dec, 2010 - Sep, 2011]
Junior Consultant Bogotá, Colombia

- **Bogotá Chamber of Commerce:** Performed data analysis to identify different types of entrepreneurs within the program Bogotá Emprende. Created a process for assessing entrepreneurs' needs and allocating corresponding services provided by the Chamber. Designed indicators to monitor the progress of the program and entrepreneurs.
- **National Training System (SENA):** Coordinated the design and analysis of surveys to the different stakeholders. Conducted focus groups and meetings with stakeholders across private, academic and public sectors

CLUSTERS COMPETITIVENESS SUPPORT PROGRAM [Dec, 2008 – Jun, 2010]
Intern – Monitoring and Evaluation Officer Bogotá, Colombia

- Coordinated a multi-stage data collection process for 700 program beneficiaries over the course of two years, including baseline, post-project, and follow up. Wrote internal reports with results and policy implications.

Working Papers

- "The Endowment Effect on Entrepreneurs' Risk Behavior: A Risky Attachment." Echeverry, Isabela and Reyes, Santiago. (2018). Forthcoming, Estudios de Economía. Universidad de Chile.
- Identifying and Spurring "Gazelles": Quasi-experimental Evidence from a Government-backed Business Accelerator Gonzalez-Uribe Juanita and Reyes, Santiago. (2018)
- "Entrepreneurs, entrepreneurships and ecosystems: an assessment of the effectiveness of Peruvian Start up programs". Goñi, Edwin and Reyes, Santiago (2018)
- "Does it pay to be formal? Evidence from the Brazil labor market" Messina, Julián, Reyes, Santiago and Sanz-de-Galdeano, Anna. (2018).