

**Untangling the Benefits of Business Accelerators:
Experimental Evidence on What Works and for Whom¹**

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Working Paper, May 2025

¹ We would like to thank Gustavo Rios who provided great research assistance to the entire project. We are thankful to iNNpuls Colombia and Cali Chamber of Commerce for leading the implementation of the program. This research was possible thanks to the funding provided by the Innovation Growth Lab. We also received support in data collection and administrative tasks from Lina Zarama and Juan Manuel Franco. The views expressed herein are those of the authors and do not necessarily reflect the views of their affiliated organizations.

Abstract

Despite the widespread adoption of business accelerators, a fundamental question remains unresolved: what type of support is most effective for different types of entrepreneurs? While most accelerators offer training, mentorship, and access to networks and investors, their core focus varies—some emphasize managerial capital (skills for operational efficiency), while others prioritize entrepreneurial capital (capabilities for opportunity recognition and network expansion). This paper presents the first randomized controlled trial to rigorously compare the effectiveness of these distinct approaches among opportunity-driven entrepreneurs. The findings challenge the conventional one-size-fits-all model. For the average participant, managerial capital training led to more efficient business operations, better management practices, and 18% faster growth relative to those receiving entrepreneurial capital training. In contrast, among high-growth-potential entrepreneurs, entrepreneurial capital training unlocked exceptional outcomes—43% faster growth and greater job creation. Leveraging regional variation in program access, we also compare similar entrepreneurs with and without support, highlighting that the program's average impact is driven primarily by those who received managerial training. These results underscore the critical importance of targeting: accelerators could significantly increase their effectiveness by tailoring support based on the entrepreneurial potential of participants.

1. Introduction

Entrepreneurship drives economic growth and social mobility, prompting governments worldwide to invest heavily in programs that support new ventures. Among these initiatives, business accelerators have emerged as a prominent model used by both public and private sectors. While public agencies view accelerators as catalysts for entrepreneurial ecosystems, private investors leverage them to nurture and invest in promising ventures.

Recent evidence demonstrates that accelerators can enhance venture performance, particularly through entrepreneurial capital training—services not easily purchased in the market, such as access to networks, guidance from experienced entrepreneurs, and the ability to quickly assess new opportunities (Gonzalez-Uribe and Leatherbee, 2018). The impact can be substantial: even without financial support, entrepreneurial capital training alone can significantly boost the trajectory of high-growth potential ventures (Gonzalez-Uribe and Reyes, 2021).

Currently, programs vary considerably in their approach (Assenova and Amit, 2024). Some focus on developing managerial capital—teaching skills that enhance operational efficiency—while others emphasize entrepreneurial capital, helping ventures explore new opportunities and build networks. An important but unexplored question in the design of accelerator programs is whether they should provide the same mix of services to all entrepreneurs or if a more targeted approach would maximize their impact. The answer to this question has significant implications for both practice and policy: Would entrepreneurs benefit more from targeted training aligned with their specific needs? And crucially, which type of support—managerial or entrepreneurial capital—is most effective for different types of ventures?

This paper provides the first experimental evidence on the relative effectiveness of different accelerator services across different type of entrepreneurs. We show that the impact of

acceleration depends crucially on matching the type of support to the right entrepreneur. Our findings not only clarify the potential and limitations of these programs, but also provide insights for policymakers designing support initiatives and investors nurturing accelerated ventures.

The idea that organizational leaders benefit from business training is not new, with good business practices being highly correlated with firm productivity (Bloom and Van Reenen, 2007; Scur et al., 2021). Over a decade ago, scholars examined how business education affects the performance of established firms, finding that managerial capital training improves established firms' performance (Bruhn, Karlan, and Schoar, 2010; Bruhn and Zia, 2013). While these important randomized controlled trials focused on teaching management practices to firms with proven business models, proponents of entrepreneurial capital training argue that young firms need capabilities tailored to their stages of discovering, capturing, and scaling opportunities.

The distinction between established firms and new ventures is important. Gonzalez-Uribe and Leatherbee (2018) posit that entrepreneurial capital is unique and distinct from managerial capital, because new ventures are not simply a smaller version of established firms. While established firms focus on improving the efficiency of their business model, new ventures are faced with the possibility of discovering and creating new business opportunities. Thus, they must validate hypotheses and test new markets (Leatherbee and Katila, 2020), ultimately operating under different decision-making principles relative to established firms.

To test the heterogeneous roles of managerial and entrepreneurial capital training on venture performance, this paper exploits a randomized controlled trial within a business acceleration program in Colombia. In this program, some participants received managerial capital training, which included consulting and guidance aimed at improving their managerial practices and increasing process efficiency. Another group of participants received

entrepreneurial capital training, which focused on enhancing their entrepreneurial practices, such as introducing new products, exploring new markets, and developing the flexibility to quickly transition or “pivot” towards better business opportunities.

The results of the experiment evidence heterogeneous effects of the intervention. For the typical firm in our sample, managerial capital training increased their performance (measured by sales) by 18%. However, for the most innovative firms based on their ex-ante growth potential, entrepreneurial capital training boosted their performance to 43% more than their counterparts. Moreover, managerial capital training reduced the time entrepreneurs spent on administrative tasks and allowed them to increase their monitoring of operations. This change in time-allocation was accompanied by a greater adoption of indicators to track and monitor startup performance. Conversely, the results do not show major differences in the efforts taken by participants with entrepreneurial capital training or in the size of their networks, suggesting an increase in the effectiveness or quality of such networks.

The paper contributes to several literatures. The first is the literature on training entrepreneurs. For example, Brun, Karlan and Schoar (2010) find that managerial capital improves existing firm performance, while Gonzalez-Urbe and Leatherbee (2018) and Gonzalez-Urbe and Reyes (2021) find that entrepreneurial capital improves venture performance. However, it is not clear how each type of capital can affect new firm performance. To the best of our knowledge, we are the first to distinguish the effects of managerial capital training from those of entrepreneurial capital training on new firm performance. Furthermore, we explore the differences in impact across different types of entrepreneurs and start-ups (McKenzie et al., 2023).

A second literature stream focuses on how managers and entrepreneurs spend their time and its impact on firm performance. It is well established that individuals with a managerial disposition behave and decide differently to those with an entrepreneurial disposition (Dyer, Gregersen and Christensen, 2008; Kaish and Gilad, 1991; Busenitz and Barney, 1997). For example, Bandiera et al. (2024) followed 94 CEOs of the top 600 Italian firms over a pre-specified week, recording the time devoted each day to different work activities. Their focus was on the distinction between time spent with insiders (employees of the firm) and outsiders (people not employed by the firm). They found systematic differences among individual CEOs in their total work hours and the proportion of time spent with insiders versus outsiders. Their findings suggest that time spent with outsiders is, on average, less beneficial to the firm and more beneficial to the CEO. We contribute to this literature by focusing on new rather than established firms, focusing on founders rather than on professional managers. Moreover, we distinguishing between the time spent on exploration (focus on new growth opportunities) and exploitation (focus on improving the efficiency of existing operations). Our results align with the perspective that firm leaders' time-management is essential for firm performance. Our results are consistent with theoretical work on hierarchies. In these models, intellectual tasks—such as information processing (Van Zandt, 1998), communication (Bolton and Dewatripont, 1994), and problem-solving (Garicano, 2000)—require time-allocation, which is particularly scarce among organization leaders, especially for young firms.

This paper is structured as follows: The second section encompasses a literature review on business accelerators and summarizes the evidence from prior work on the role of managerial and entrepreneurial capital in young firms. The third section describes the experimental design

and the estimation methodology. The fourth section presents the results, and finally the fifth section concludes.

2. Entrepreneurial and managerial capital for new firm growth

Managerial and entrepreneurial capital are distinct types of capital that can affect firm performance in different ways. Entrepreneurial capital equips entrepreneurs with skills to maximize the reach of their products and services, better explore business opportunities, create and utilize business networks, and quickly learn from market signals. These activities align with explorative adaptation in business strategy (Uotila, 2018). Serial entrepreneurs illustrate the importance of entrepreneurial capital; they often bring innovative solutions to their ventures, benefiting from prior experiences, and enhancing longevity (Parker, 2013; Vaillant and Lafuente, 2018; Lafontaine and Shaw, 2016).

Managerial capital, on the other hand, equips entrepreneurs with skills to run their firms efficiently, standardize product and service quality, and coordinate with multiple stakeholders (employees, clients, suppliers, etc.). These tasks align with exploitative adaptation in business strategy (Uotila, 2018). Managerial capital can increase the marginal productivity of other inputs and reduce management errors, significantly impacting operational efficiency and business performance (Bruhn et al., 2010), and it strongly correlates with higher productivity levels in established businesses and income differences across countries (Bloom and Van Reenen, 2010). However, increasing managerial capital through firm support interventions has proven challenging, with significant effects seen only in intensive and selective training programs (McKenzie and Woodruff, 2023).

Young firm entrepreneurs face the challenge of balancing time and resource investments between production, efficient operations, and market growth. Organizational ambidexterity is crucial for long-term survival, allowing firms to balance exploitation and exploration activities (Rojas-Córdova et al., 2022).

Business accelerators have become a key component of the entrepreneurial ecosystem, offering limited-duration, cohort-based programs that provide intensive training and support, enabling startups to grow rapidly (Cohen and Hochberg, 2014). Combining entrepreneurial capital training and financing has been shown to enhance venture performance, emphasizing the importance of entrepreneurial capital for creating and expanding new opportunities (González-Uribe and Leatherbee, 2018). Even without financial support, entrepreneurial capital training alone can significantly boost startups' growth trajectories (Gonzalez-Uribe and Reyes, 2021).

Despite the diversity of services offered by business accelerators, there is limited and unclear evidence about what works and for whom. Programs that tailor activities and resources to the specific needs of each startup are more successful in promoting business development (Cohen et al., 2019). Accelerators that promote exploration through interactions with mentors and customers enhance startups' ability to identify and capture new opportunities, accelerating growth (Assenova and Amit, 2024). In established businesses, the focus of training (marketing vs. financing) has heterogeneous impacts on firm performance (Anderson et al., 2018).

This experiment aims to fill the gap by providing either managerial or entrepreneurial capital training to a cohort of participants in a business accelerator program in Colombia. Entrepreneurs randomly selected for the managerial capital arm received consulting services focused on improving firm efficiency. Those assigned to the entrepreneurial capital treatment received consulting on quickly pivoting, testing hypotheses, and exploring new markets and

products that better-fit consumer needs. The next section details the experimental setting, methodology, and data.

3. Empirical setting and methodology

The experiment was conducted as part of a national business acceleration program financed by iNNpulsa Colombia, the governmental agency responsible for promoting entrepreneurship and innovation. The program was operated by Chambers of Commerce in 12 regions across the country. It was based on the methodology developed by the Cali Chamber of Commerce for their ValleE program, which was previously evaluated by Gonzalez-Uribe and Reyes (2021). This evaluation helped improve the program, leading to its validation and national expansion. The Cali Chamber of Commerce led the expansion, providing training and supervision to all regions to ensure consistent implementation of the program.

3.1. Experimental design

The program's call for applications took place from September to November 2021. It targeted start-ups that had sales, were established within the last seven years, and had an innovative component in their business model. The application form was structured into six major categories (see Appendix A2): basic company information, finances, business model, funding, characterization of the entrepreneurial team, and soft skills.

This information was used to select companies, with each startup receiving a score from three randomly assigned expert judges who assessed the quality of the project and the entrepreneurial team. The evaluation was conducted on Sabimetrics, a platform used by the Cali Chamber of Commerce. The scores used to select the best entrepreneurs were adjusted for judges' leniency following Gonzalez-Uribe and Reyes (2021). The assessment considered various characteristics of the start-ups and the founders, such as sales relative to the company's

age, the leaders' work and sectoral experience, motivation to start the business, and the presence of an entrepreneurial team.

A total of 1,173 startups applied for the program, and only 305 were selected. The top applicants in each region were chosen based on their scores, with the number of available slots per region proportional to the number of valid applications. Consequently, the cutoff point differed by region.

Table 1 provides descriptive statistics of the selected projects and their entrepreneurs. On average, these firms are young, with three years of operation. About 67% manufacture products, and 44% offer services (some firms do both). The entrepreneurs are highly qualified, with 75% holding a college degree and an average of 11 years of experience. They are typically in their thirties. Additionally, 45% of the firms are women-led, and 81% have an entrepreneurial team. As expected for targeted young firms, their sales are low, and many do not generate profits.

Table 1. Characteristics of the applicants

Variables	Mean
Has Entrepreneurial Team (%)	81.0
Manufacturing of products (%)	67.9
Services (%)	44.3
Has Received Funding (%)	33.1
Exports (% of firms)	12.5
Experience in Large Companies (% of founders)	59.3
Has Previous Entrepreneurial Experience (% of founders)	41.0
Receives a Fixed Salary (% of founders)	54.8
Family Business (%)	43.0
Sales 2020 (USD thousands)	22.7
Profits 2020 (USD thousands)	2.8
% women-led startups (%)	44.9
Age of the Founder (years)	37.3
Work Experience of Founder (years)	11.1
Average Sector Experience of Entrepreneurial Team (years)	5.8
Average Experience of Entrepreneurial Team (years)	11.3
Age of the Firm (years)	3.1
N	305

Once the 305 entrepreneurs were selected for the program, they were randomly assigned to one of two treatment groups: one focusing on managerial capital training and the other on entrepreneurial capital training. The random selection was stratified by region. Within the 12 regions we identified the four most innovative proposals in terms of score and assigned randomly half into each treatment arm, in order to ensure that some of the most innovative proposals were in both groups. In the same spirit, we then ranked the remaining companies into groups of four based on their score. Within these quartets, two firms were randomly assigned to each arm. In this way, we made sure we have equal quality-distribution of companies in the two treatment arms. The only exception where two regions were a larger number of participants were allocated to the managerial capital group due to a shortage of consultants with an “entrepreneurial mindset,” as described later in this section.

Table 2 presents the balance across treatment groups. The only statistically significant difference between the groups can be seen in the profits from the year before application. However, this difference is not economically significant for these types of firms, primarily due to a large number of observations in both groups with no profits at all.

Table 2. Balance table across treatment arms

Variables	Managerial capital	Entrepreneurial capital	P-value
Sales 2020 (USD thousands)	21.8	23.6	0.551
Sales 2021 to application date (USD thousands)	29.6	28.2	0.707
Profits 2020 (USD thousands)	1.8	3.6	0.038*
Total employment	5.6	6.0	0.502
Average salary	0.3	0.3	0.849
Age of enterprise	3.0	3.1	0.471
Age of entrepreneur	37.2	37.2	0.999
Number of people in entrepreneurial team	2.3	2.4	0.409
Work experience entrepreneur 1	11.1	11.1	0.963
Entrepreneur's sector experience 1	5.6	5.9	0.671
Number of efficiency activities in last 6 months	1.9	1.8	0.663
Number of entrepreneurial capital activities in last 6 months	2.6	2.6	0.736

Entrepreneurial Experience	0.137	0.107	0.451
Average Skills	3.3	3.3	0.198
Main Client: B2B	0.413	0.393	0.728
Export	0.110	0.140	0.423
Use indicators for decision making	0.413	0.393	0.728
Offers services	0.445	0.440	0.928
Observations	305		

For four months, the 305 selected startups received a basic introductory training, which was the same for both treatment arms. They also participated in weekly follow-ups and had access to up to three hours of specialized consulting services, each tailored to their specific treatment group (managerial or entrepreneurial).

The weekly follow-ups were held virtually in small groups of entrepreneurs from the same treatment group. These sessions aimed to establish tasks related to their specific treatment focus and discuss tasks from previous weeks (cf. Leatherbee, Gonzalez-Uribe and Kausel, 2024). Although the consultant structured the discussion topics, entrepreneurs could bring up other issues. The consultant would address these topics to the best of their ability before returning to the session's focus. This flexibility means that while the primary focus was on the assigned treatment, some deviations occurred, which should be considered when interpreting the results of the experiment.

For the specialized consulting services, entrepreneurs chose the area of their firm where they needed support, including seven broad areas: digital marketing and branding, innovation, sustainability, commercial, human resources, financial, and legal and tax. The available consultancies for each area varied by treatment group as detailed in the Appendix. For example, in the managerial treatment arm, commercial support included consultancies aimed at improving the efficiency of existing channels, such as tools for managing the commercial team, customer segmentation, or designing incentives for salespeople. In contrast, the entrepreneurial treatment

arm focused on developing customer strategies, such as reaching new client segments, exploring new market niches for export, or penetrating new markets. This approach allowed consulting services to be flexible and responsive to the entrepreneur's needs while maintaining the focus of the assigned treatment arm.

The top 150 projects were invited to participate in the second phase, which involved one-on-one consulting to create a strategic plan. For the managerial capital treatment arm, the strategic plan focused on improving firm efficiency. For the entrepreneurial capital treatment arm, it focused on growth through exploring new markets, networks, and new business opportunities.

Consultants for each treatment arm were selected based on their expertise, behaviors, and preferences to identify their “entrepreneurial mindset.” Those with a high entrepreneurial mindset were assigned to the entrepreneurial treatment, while those with lower scores were assigned to the managerial treatment. All consultants were highly qualified, averaging ten years of experience, and many had been executives or business consultants. The entrepreneurial mindset was quantified using a measure of preference towards “effectual” versus “causal” thinking (Sarasvathy, 2001; McKelvie, Chandler, de Tienne, Johansson, 2020; Brettel, Maurer, Engelen, Kupper, 2012). Causal thinking refers to defining a goal and identifying the activities and resources required to achieve such goal. This type of thinking is prevalent among managers of established firms that have significant resources. Effectual thinking refers to creatively imagining the possible outcomes that could be achieved with the resources at hand. This type of thinking is prevalent among entrepreneurs who must create opportunities with existing resources (Baker and Nelson, 2005).

To ensure the one-on-one sessions were correctly implemented, an external consulting firm monitored the sessions and completed a form to verify that the topics addressed aligned with each entrepreneur's designated treatment arm. Additionally, the external monitor assessed whether the consultants addressed the specific challenges of each business according to the assigned treatment arm. This monitoring mechanism revealed no significant deviations from the original random assignment. Only 6.82% of the entrepreneurial capital firms and 9.09% of the managerial capital firms received a mix of managerial and entrepreneurial topics. This occurred because some challenges required solutions that spanned both frameworks, and the goal of the intervention was to provide practical help rather than force artificially rigid consulting.

To assess the intervention's impact, we conducted two follow-up surveys via phone calls and, when necessary, sent forms via email to non-responding entrepreneurs. The first one was implemented 18 months after treatment started, and the second one 30 months after the start date. The objective was to collect key data from the startups, such as sales, profits, and number of employees. Additionally, we gathered information about the entrepreneurs, including how they allocated their time among exploitation, exploration, and administrative tasks, in addition to their decision-making processes. These variables are described in Section 4.

In the first follow-up, we received responses from 271 out of 305 companies, 135 from the managerial capital group and 136 from the entrepreneurial treatment group, achieving a response rate of 88.9%. The second follow-up survey was answered by 176 firms, and an additional 67 firms had closed (either we received an answer from the firm, or we were able to verify that information using administrative data). This high response rate ensured consistent and reliable results.

It is important to note that the experiment did not include a randomly assigned pure control group, but rather two distinct treatment groups. The goal was to determine which type of capital training—managerial or entrepreneurial—was most effective for entrepreneurs. The capital training has already been rigorously evaluated by Gonzalez-Urbe and Reyes (2021). However, we utilized the specific characteristics of the experiment setting to construct a quasi-experimental control group, allowing us to benchmark the results of the different treatment arms, as explained in more detail below.

3.2. Empirical strategy

The main empirical strategy uses the standard approach in randomized control trials and compares outcomes across firms in the different treatment arms. In detail, we run different versions of the following equation:

$$y_i = \alpha + \beta \text{Type of Treatment}_i + \sum_{s=1}^S c_s 1(i \in s) + \delta Z_i + \varepsilon_i \quad (1)$$

where the variable *Type of Treatment_i* indicates firms assigned to the managerial capital or entrepreneurial capital treatment groups, $1(i \in s)$ are strata dummy variables and Z_i includes the measure of the variable y_i at baseline if available, or a dummy specifying the missing baseline.

The main outcome variable is sales, which we transform using a hyperbolic sine transformation to control for skewness. We also use the number of employees as an outcome variable. Note that stratification implicitly controls for baseline project quality (as evaluated by judges) and region. Further, we also control for entrepreneurs' experience, gender, indicators for serial entrepreneur and team, indicators for whether products are new to the region, initial profits, sales, indicator for business to consumer (B2C) business models, firm age, score and region fixed effects. We use robust (Eicker-White) standard errors throughout. As a robustness

check, we also re-estimate equation (1) after controlling for judge fixed effects (see Gonzalez-Uribe and Reyes, 2021).

We explore heterogeneity of impact by estimating the following types of regressions:

$$y_i = \alpha + \beta \text{Type of Treatment}_i \times \text{Covariate}_i + \text{Covariate}_i + \sum_{s=1}^S c_s 1(i \in s) + \delta Z_i + \varepsilon_i \quad (2)$$

Where Covariate_i include different sample cuts to explore heterogeneity of impacts. We also estimate more flexible regressions where we allow the covariate's effect to vary by strata too. We explore heterogeneity of impacts across different covariates including: score of the project (used for selection), quality of the business model (scores of innovativeness and scalability), and characteristics of the entrepreneur and their team (education, gender, labor experience, experience as entrepreneur, and skills).²

There are several methodological issues other than lack of power from small sample sizes that can arise in a randomized trial. We look out for –and control for– these issues as much as possible to protect the internal validity of the experiment. We also plan to perform several robustness tests to address these issues in future versions of the paper.

First, we recognize that while treatment assignment is random, treatment receipt might not be. To address this concern, we perform additional analysis using instrumental variables regressions where we instrument for treatment based on assignment. Second, we keep track of attrition and plan to use Lee bounds (2009) to explore the sensitivity of results to potential differential attrition across treatment arms. Third, we plan to explore – in future versions of this paper – both the short-term and the long-term effects of the program to test for so-called Hawthorne effects, where subjects change their behavior simply because they know they are in

² In future versions of this paper, we plan to test for heterogeneity by using the endogenous stratification method following the best practices in Abadie, Chingos and West (2018).

an experiment. Long-term effects are less likely affected by these effects. We will also contrast our results to randomization inference methods to mitigate the possible biases caused by small samples.

In addition to the standard methods used in randomized control trials, we leveraged regional capacity restrictions to create a pure control group against which to benchmark the results. During the screening process, companies were ranked against participants from all regions, but the final program selection was made at the regional level. This means that some “global high rankers” might not be selected if they were below the top firms in their region, even though they scored higher than some selected firms in regions with weaker applicants.

We took advantage of this program design by using propensity score matching to compare participants with non-participants who had similar application scores but different participation statuses due to the average quality of their region. Naturally, because the selection process prioritized access to high-ranking applicants, the matching method does not produce suitable control applicants for the top scorers. We restricted observations to those within a 1% difference in the probability of selection. Consequently, 191 treated firms within the support and 78 treated firms off the support were excluded from this analysis.

4. Results

The first part of this section presents the experiment’s results, focusing on whether entrepreneurial or managerial capital training was more effective for the ventures that participated in the program. The second part leverages the variation in selection cutoffs across regions, which depends on the number of eligible applicants. This approach allows us to compare entrepreneurs with similar characteristics, including both those who participated in the program

and those who did not. This quasi-experimental analysis provides additional insights into the program's overall impact and the importance of targeting.

4.1. Entrepreneurial or managerial capital, and for whom?

We begin the analysis by examining how entrepreneurs allocate their time. Table 4 shows the differential effect of the managerial treatment arm compared to the entrepreneurial treatment arm on time-allocation decisions.

The first column shows that managerial capital training led entrepreneurs to decrease the share of time spent on administrative tasks (such as payments, taxes, contracts with suppliers, and reporting to partners) by 4 percentage points relative to those in the entrepreneurial capital training arm. This represents a 17% reduction in time spent on these tasks compared to firms in the entrepreneurial capital arm. We note that the changes in time allocation occurred during a period of sales growth.³ Firms with entrepreneurial capital training increased the share of time spent on administrative tasks from 18% to 26%, while firms with managerial capital training increased it from 18% to 22%.

Column 5 shows that the time entrepreneurs in the managerial capital arm saved on administrative tasks was primarily used for following up on and monitoring the firm's operations and performance. However, columns 2 and 3 show that some of this saved time appears to have been allocated to exploration activities, such as creating new business lines and networking, although the coefficients are not statistically significant. This suggests complementarities across activities and highlights the importance of ambidexterity in growth strategies.

Figure 2 plots the heterogeneity of results across initial sales levels. The impact of managerial capital training on time allocated to administrative tasks is more significant for firms

³ On average treated firms grew by 50% relative to baseline.

with higher sales levels. This outcome is expected as time constraints increase with higher sales volumes, increased employment, and the need for more effective processes.

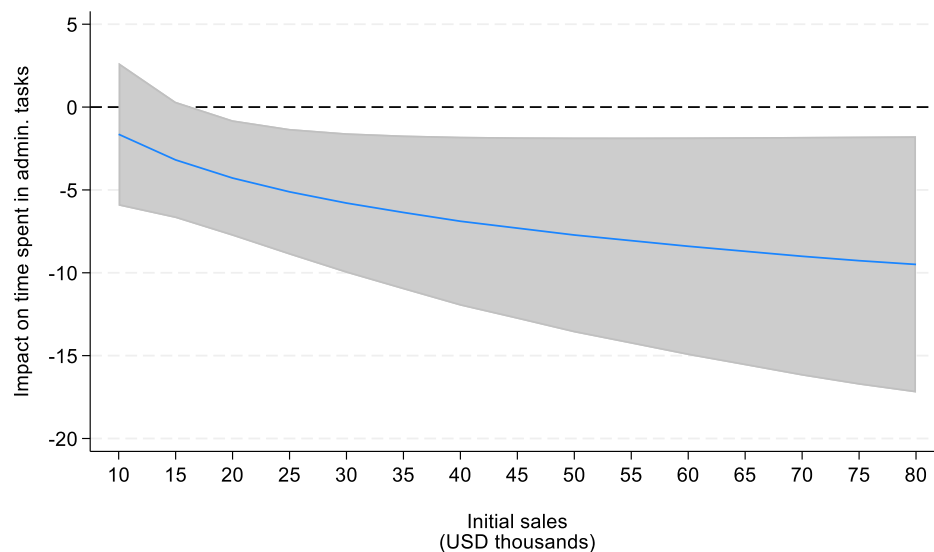
Table 4. Impact on time allocation

VARIABLES	(1)	(2)	(3)	(4)	(5)
	Admin tasks	New business lines	Networking	Creation of new processes	Monitoring operation
Managerial treatment	-4.099** (1.642)	0.271 (1.393)	1.121 (1.855)	-0.378 (1.230)	3.085** (1.265)
Log initial sales	1.755 (1.084)	-0.469 (0.946)	2.059 (1.374)	-1.088 (1.076)	-2.256* (1.097)
Constant	24.654*** (5.429)	12.100** (4.537)	28.794*** (7.547)	17.459*** (3.460)	16.993** (6.397)
Observations	244	244	244	244	244
R-squared	0.136	0.095	0.084	0.136	0.112
Controls:	YES	YES	YES	YES	YES

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Figure 2. Impact on time allocated to administrative tasks by initial sales.



Note: The figure shows the estimated margins of a linear regression interacting a managerial treatment dummy variable with the continuous variable of initial sales. The margins are then calculated at different levels of initial sales.

Along with changes in time allocation, Table 5 shows that firms choose to implement different activities based on the type of training received. Table 5 shows the probability of implementing various exploitation (panel a) and exploration (panel b) activities in the short and long run (18 and 30 months after treatment, respectively)

For founders in the managerial capital training arm, the key distinguishing activity change was an 11% higher likelihood of defining monitoring indicators, aligning with the results shown in Table 4. Bloom and Van Reenen (2010) identify this practice as strongly correlated with better firm performance in several dimensions. In the long run, the results indicate that founders with managerial capital are more likely to define and update roles for their teams. This should help them navigate more efficiently their firm's growth.

Conversely, there were no significant changes in the short term regarding the types of activities implemented by founders in the entrepreneurial capital arm. However, when measured two and a half years after treatment, we observe that firms with greater entrepreneurial capital were more likely to innovate (mostly by upgrading the quality of existing products and services).

Table 5. Impact on activities performed

VARIABLES	Panel a. Exploitation activities		
	(1)	(2)	(3)
	Short-run		Long-run
	Define monitoring indicators	Create operations manuals	Define/update roles
Managerial treatment	0.114** (0.05)	0.05 (0.075)	0.110** (0.047)
Constant	0.397 (0.335)	-0.185 (0.218)	0.180 (0.294)
Observations	244	244	176
R-squared	0.131	0.096	0.231
Controls:	YES	YES	YES

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Panel b. Exploration activities			
VARIABLES	(1)	(2)	(3)
	Short-run		Long-run
	Explore new products	Explore new markets	Innovate
Entrepreneurial treatment	0.048 (0.071)	0.089 (0.070)	0.122* (0.062)
Constant	0.689*** (0.163)	-0.083 (0.153)	0.244 (0.197)
Observations	244	244	176
R-squared	0.163	0.143	0.173
Controls:	YES	YES	YES
Robust standard errors in parentheses			
*** p<0.01, ** p<0.05, * p<0.1			

In a complementary analysis, we explored the heterogeneity of results by founders' gender. Table 6 shows the most interesting finding: Male-led firms in the entrepreneurial capital arm were more likely to increase employee training on both existing and new technologies. Whereas this effect was not observed for female-led ventures. This result aligns with evidence from Cirera et al. (2024), which shows that female-led businesses are less likely to adopt ERP systems and sector-specific technologies. Further research is needed to determine whether these differences are driven by preferences (e.g., less openness to adopting technologies) or financial constraints (e.g., less available collateral).

Table 6. Impact of entrepreneurial capital and technology adoption

VARIABLES	(1)	(2)
	Activities performed in last 12 months Training existing tech.	Training new tech.
Entrepreneurial treatment	0.162** (0.064)	0.086* (0.047)
Entrepreneurial * Woman	-0.218 (0.126)	-0.140 (0.096)
Constant	0.302 (0.175)	-0.016 (0.157)
Observations	244	244
R-squared	0.122	0.122
Controls:	YES	YES

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Having shown that the treatment arms have different effects on entrepreneurs' time use, Tables 7 and 8 present the effects on venture growth as measured by sales growth and employment, respectively.

Column 1 in Table 7 shows that in the short run, one year and a half after starting the treatment, firms with managerial capital training grew their sales 13% faster than their counterparts with entrepreneurial capital training. Instead, column 1 in Table 8 shows no effects on employment. These results on short-term revenue could be explained by the managerial arm's focus on helping entrepreneurs sell existing products and services more effectively, in contrast to the entrepreneurial arm's focus on discovering and capturing new opportunities that take longer to materialize. These results do not show much change when the analysis includes data from 2.5 years after treatment, suggesting long-lasting impacts of the intervention.

The aggregate results conceal significant heterogeneity across different quality projects (see columns 2 and 4 in both tables). While, on average, managerial capital training has a larger impact on participants than entrepreneurial capital training, increasing sales growth by 18%, the

topmost innovative ventures (as assessed by the program) benefit more from entrepreneurial capital training. Specifically, the highest-scoring ventures in the entrepreneurial track experienced a 43% greater sales growth in the short-run and hired 7.6 more employees.

We speculate that higher-potential entrepreneurs can more rapidly convert the benefits of entrepreneurial capital training into tangible results than their lower-potential counterparts. This hypothesis aligns with the findings of Yu (2020) and González-Urbe and Leatherbee (2018), who observed that accelerator programs tend to accelerate the success of high-quality entrepreneurial opportunities while hastening the failure of low-quality ones.

Moreover, González-Urbe and Reyes (2021) demonstrate that the impact of training is most significant for the high-potential ventures. This, combined with our results, suggests that business accelerators are an effective tool for alleviating managerial and entrepreneurial capital constraints, but primarily for entrepreneurs who already exhibit high-growth potential from the start. For most firms, it appears that providing support to improve their processes, increase efficiencies, and enhance their ability to monitor performance is a more beneficial approach.

Moreover, González-Urbe and Reyes (2021) show that the impact of business accelerators occurs at the top of the distribution, which, combined with these results, suggests that business accelerators are a potent tool to alleviate constraints to entrepreneurial capital faced by entrepreneurs but only for a few which from the start have high-growth potential. For the rest of the firms, helping them improve their processes, increase efficiencies, and monitor their startup's performance seems to be a better support mechanism.

Table 7. Impact on sales

	(1)	(2)	(3)	(4)
	Log of Sales			
VARIABLES	Short-run		Long-run	
Managerial treatment	0.128*	0.182**	0.117*	0.171**
	(0.076)	(0.081)	(0.065)	(0.069)
Managerial * Top		-0.610**		-0.540**
		(0.244)		(0.213)
Constant	1.960***	2.681***	1.983***	2.615***
	(0.325)	(0.287)	(0.276)	(0.246)
Observations	540	540	892	892
R-squared	0.276	0.271	0.390	0.386
Controls:	YES	YES	YES	YES
Year fixed effects:	YES	YES	YES	YES

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 8. Impact on employment

	(1)	(2)	(3)	(4)
	Total Employment			
VARIABLES	Short-run		Long-run	
Managerial treatment	-0.189	0.344	0.249	1.040
	(0.687)	(0.757)	(0.690)	(0.723)
Managerial * Top score		-5.450**		-7.631***
		(2.351)		(2.223)
Constant	0.156	2.744	-0.383	2.474
	(2.012)	(1.579)	(2.941)	(2.580)
Observations	271	271	447	447
R-squared	0.143	0.162	0.120	0.143
Controls:	YES	YES	YES	YES
Year fixed effects	NO	NO	YES	YES

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Further tests examined whether the top ventures in the entrepreneurial capital arm performed differently from their counterparts in the managerial capital arm. However, no significant differences were found. This lack of distinction suggests that entrepreneurs may be

equally productive with their time and efforts to explore and develop products that meet consumer preferences, regardless of the type of capital training received.

For instance, we observed no differences in the time spent exploring new opportunities between top entrepreneurs treated with managerial capital and those treated with entrepreneurial capital. Yet, the latter group achieved significantly higher sales. Since entrepreneurial capital focuses on identifying better opportunities more quickly (Leatherbee & Katila, 2020), we speculate that entrepreneurs who receive entrepreneurial capital training become more effective in discovering viable and valuable opportunities.

4.2. Quasi-experimental evidence on the impact of the program

The results in the previous section evaluate the different impacts of managerial versus entrepreneurial capital on various types of founders. However, it is also crucial to determine whether the founders who participated in the program performed better than those who did not, and what type of treatment actually made a difference. To address this question, we utilized the set number of spots per region, which varied based on the number of eligible applicants, resulting in different quality cut-off points across regions. For instance, one region had a cut-off point of 42, while another had a cut-off point of 33. Using matching techniques, Table 9 summarizes the program's impact on participants compared to non-participants for the previously explored variables. It is important to note that this analysis can be done for the “average” entrepreneur that sits next to the cutoff points, and not for the high-growth potential ones who would have been selected no matter the region they were in.

Table 9, panel A, shows that overall treated firms performed better than similar firms that did not participate in the program. Participation in the program is associated with a 36.3% increase in sales and the creation of two additional employment opportunities. However, as

shown previously, the impact is highly heterogeneous. Panel b shows that most of the impact comes from the average firm receiving managerial capital, rather than entrepreneurial capital. This result highlights the importance of targeting to maximize the impact of firms' support programs.

Table 9. Impact of the program relative to non-participants

Panel A. Performance Indicators		
VARIABLES	(1) Sales	(2) Employment
ATT	0.363** (0.172)	2.14** (0.898)
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		
Impact on sales by treatment		
VARIABLES	(1) Managerial	(2) Entrepreneurial
ATT	0.577*** (0.091)	0.186** (0.074)
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		

5. Conclusions

This paper aims to distinguish the effects of managerial capital training from entrepreneurial capital training. To the best of our knowledge, this randomized controlled trial is the first to address this distinction with such precision. Disentangling these two types of capital training is crucial because startups are not merely smaller versions of established firms. As this paper demonstrates, they operate under different business logics and require different approaches.

Our research builds on an emerging body of literature that highlights the performance-enhancing effects of business accelerators, advancing the knowledge frontier by showing that managerial and entrepreneurial capital training yield heterogeneous returns. Managerial capital training improves the performance of the average startup, while entrepreneurial capital training provides higher returns for those with the greatest growth potential.

For the average startup, managerial capital training reduces time spent on administrative tasks, increases time spent monitoring operations, and leads to the adoption of operational indicators. These changes result in an 18% higher growth rate than startups receiving entrepreneurial capital training. However, for high-growth-potential entrepreneurs, we observe that the program leads them to innovate more (mainly through product/service upgrading), and it unlocks extraordinary performance, leading to 43% faster growth and 7.6 more full-time employment opportunities than their peers who received managerial capital training instead. Quasi-experimental analysis allows us to show the importance of targeting. Relative to similar firms not receiving any support, the average entrepreneur in our sample grew faster and generated more employment opportunities. However, this result is driven mainly by those receiving managerial capital.

References

- Assenova, V. A., & Amit, R. (2024). Poised for growth: Exploring the relationship between accelerator program design and startup performance. *Strategic Management Journal*, 45(6), 1029–1060. <https://doi.org/10.1002/smj.3581>
- Bloom, N., & Van Reenen, J. M. (2006). Measuring and explaining management practices across firms and countries. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.922368>
- Brettel, M., Mauer, R., Engelen, A., & Küpper, D. (2012). Corporate effectuation: Entrepreneurial action and its impact on R&D project performance. *Journal of Business Venturing*, 27(2), 167–184. <https://doi.org/10.1016/j.jbusvent.2011.01.001>
- Bruhn, M., Karlan, D., & Schoar, A. (2010). What Capital is Missing in Developing Countries? The American Economic Review, 100(2), 629–633. <http://www.jstor.org/stable/27805071>
- Bruhn, M., & Zia, B. (2013). Stimulating managerial capital in emerging markets: the impact of business training for young entrepreneurs. *Journal of Development Effectiveness*, 5(2), 232–266. <https://doi.org/10.1080/19439342.2013.780090>
- Cohen, S., Fehder, D. C., Hochberg, Y. V., & Murray, F. (2019). The design of startup accelerators. *Research Policy*, 48(7), 1781–1797. <https://doi.org/10.1016/j.respol.2019.04.003>
- Cohen, S., & Hochberg, Y. V. (2014). Accelerating startups: The seed accelerator phenomenon. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.2418000>
- Gonzalez-Uribe, J., & Leatherbee, M. (2018). The effects of business accelerators on venture performance: Evidence from start-up Chile. *The Review of Financial Studies*, 31(4), 1566–1603. <https://doi.org/10.1093/rfs/hhx103>
- González-Uribe, J., & Reyes, S. (2021). Identifying and boosting “Gazelles”: Evidence from business accelerators. *Journal of Financial Economics*, 139(1), 260–287. <https://doi.org/10.1016/j.jfineco.2020.07.012>
- Lafontaine, F., & Shaw, K. (2016). Serial entrepreneurship: Learning by doing? *Journal of Labor Economics*, 34(S2), S217–S254. <https://doi.org/10.1086/683820>
- Leatherbee, M., & Katila, R. (2020). The lean startup method: Early-stage teams and hypothesis-based probing of business ideas. *Strategic Entrepreneurship Journal*, 14(4), 570–593. <https://doi.org/10.1002/sej.1373>
- McKelvie, A., Chandler, G. N., DeTienne, D. R., & Johansson, A. (2020). The measurement of effectuation: highlighting research tensions and opportunities for the future. *Small Business Economics*, 54(3), 689–720. <https://doi.org/10.1007/s11187-019-00149-6>
- Rojas-Córdova, C., Pertuze, J. A., Williamson, A. J., & Leatherbee, M. (2022). More structure or better social practices? Using a contingency lens to address ambidexterity gaps in innovative SMEs. *International Journal of Emerging Markets*, 18(12), 5581–5606. <https://doi.org/10.1108/ijoem-04-2021-0572>
- Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of management review*, 26(2), 243. <https://doi.org/10.2307/259121>

- Uotila, J. (2018). Punctuated equilibrium or ambidexterity: dynamics of incremental and radical organizational change over time. *Industrial and Corporate Change*, 27(1), 131–148. <https://doi.org/10.1093/icc/dtx018>
- Vaillant, Y., & Lafuente, E. (2018). Entrepreneurial experience and the innovativeness of serial entrepreneurs. *Management Decision*, 57(11), 2869–2889. <https://doi.org/10.1108/md-06-2017-0592>

Appendix

A.1. Description of available services by treatment arm

Each entrepreneur was offered different support services from a pre-established “menu”. To receive them, the entrepreneur discussed with the program facilitator the areas of the business where support was needed, and from that area, a service was selected. Each treatment arm had different types of services available within each area, as described below:

1. For managerial capital treatment:

The following table describes the menu of services available for entrepreneurs selected into the managerial capital treatment arm:

Table 1. Managerial treatment

Area of consultancy	Efficiency objective	List of available consultancies
Digital marketing and branding	Improve the brand visibility to reach more customers	Improvement of SEO and SEM of the company
		Implement a digital campaign in the channel chosen by the entrepreneur
		Creation of the company branding and narrative.
Innovation	Verify that the current products and services are desirable by the market	Market validation of existing products and services
		Establish innovation indicators to track an existing innovation process and their results in the market.
		Support services on the launch of an existing prototype or MVP in the market
Sustainability	Improve firm's efficiency through sustainable practices	Consultancy to identify savings through sustainability processes within the existing business model.
		Support services to obtain sustainability certifications (specific to the sector)
	Improve the efficiency in sales channels	Tools to manage your commercial team and establishment of indicators, incentives and goals

Commercial	Create and define organizational routines	Create a customer segmentation for their current products and services
		Support services to export or import current products and services in a target market.
		Create sales incentives and commission model for salespeople
Human Resources		Tools to evaluate the workforce
Creation of role manuals		
Creation of governance protocols in the company.		
Support services to structure the organization chart and tasks for each role		
Financial	Improve financial processes to increase financial efficiencies	Support services to create/update costs structure and cash flow model for the firm
		Financial analysis of costs and cash flow of the company
		Support services to start or manage the process of a credit application
Legal and tax	Setup legal standards for the firm operation	Create the contractual minutes for the firm
		Tools to understand and choose types of contracting and legal figures
		Tailor-made contracts, advice for employment and client contracts.

2. For entrepreneurial capital treatment:

The following table describes the menu of services available for entrepreneurs selected into the entrepreneurial capital treatment arm:

Table 2. Exploration treatment

Area of consultancy	Exploration objective	List of available consultancies
Digital marketing and branding	Discover and understand the value that the venture can create in the market	Define the "Job To Be Done" for the company in terms of digital presence: Segmentation of the product or service by strategy and identify the "Benefit Ladder"

		Creation of a strategic plan of digital marketing to reach new markets
		Design a strategy to improve brand recognition and brand association
Innovation	Help the firm imagining new products or services that might be desirable by the market	Support services to develop new prototypes or explore innovation opportunities
		Setup ideation processes to promote the innovation culture inside the organization (business' DNA)
		Create a strategy to establish alliances that could foster firms' growth
Sustainability	Exploring new opportunities through sustainability	Advice on the generation of new business opportunities through waste or other sustainable practices of the company.
		Create a social responsibility strategy for sustainable growth
Commercial	Create a customer development strategy	Design a strategy to reach new segment of clients
		Exploration study of new market niches to export or import products and services.
		Design strategy to penetrate new markets and/or geographies.
		Design strategies for defining user experiences by profile
Human Resources	Create an organization enabled for growth	Create an organizational culture strategy for employees to internalize the values and principles of the organization.
		Design a talent acquisition and retainment strategy.
		Implement delegation strategies to enable firm's growth

Financial	Financing for growth	Design a financial strategy for the growth of the company
		Create a funding strategy to find funding with investors or other financing agencies
		Analysis of types of financing and their implications for growth
Legal and tax	Legal design for growth	Support services to define the fiscal and legal strategy for the growth of the company
		Support services to find referents of laws and search for new laws that can favor firm growth
		Support services for implementing tax strategies

A.2. Description of available services by treatment arm

The following table shows how the program application form was divided for entrepreneurs to be selected:

Table 3. Application form

Module	Objective	Main variables
Characterization	Basic information of the company	• Contact information • Sector
Financials	Analyze the financial stability of the company and ensure compliance with the minimum requirements of the program.	• Sales • Profits
Business Model	Analyze the type of business model that entrepreneurs who enter the program have to focus on what is being offered.	• Clients • Type of product • Model description

Financing	Analyze the access to financing via equity or debt that entrepreneurs have.	• Financing in last 24 months (sources and amounts)
Characterization of the entrepreneurial team	It allows us to understand how they act and what is the profile of the leaders of the organization	Entrepreneur profile: • Dedication to the company • Reason for starting the firm • Experience as entrepreneur • Labor and sectoral experience Entrepreneurship profile • Decision making • Perception in everyday situations of entrepreneurship Entrepreneur data • Name • Sex • Year of birth • Education level
Soft skills	allows us to work in entrepreneurship from the profile of the entrepreneur	• Business practices • Innovation attitudes and openness to new information