REVISTA CEA

Research article
Received: 19 January 2026
Accepted: 28 August 2026
JEL codes: O17, P35, M54, H83, L26.
DOI: https://doi.org/10.22430/24223182.3878

A Model for Evaluating the Impact of Entrepreneurship Programs: A Case Study in the Colombian Amazon Region*

Un modelo para la evaluación del impacto de los programas de emprendimiento: estudio de caso en la región amazónica colombiana

Diana Ali García Capdevilla[1], **Cristian Hernández Gil**[2], **Marco Antonio Aguirre**[3]

[1] Universidad de la Amazonía, Florencia - Colombia, dia.garcia@udla.edu.co, [2] Universidad de la Amazonía, Florencia - Colombia, cris.hernandez@udla.edu.co, [3] Universidad del Valle, Santiago de Cali - Colombia, marco.aguirre@correounivalle.edu.co

How to cite
García Capdevilla, D. A., Hernández Gil, C., & Aguirre, M. A. (2027). A Model for Evaluating the Impact of Entrepreneurship Programs: A Case Study in the Colombian Amazon Region. *Revista CEA*, *13*(31), e3878. https://doi.org/10.22430/24223182.3878

ABSTRACT

Objective: This study evaluated the impact of government-led entrepreneurship promotion programs implemented between 2020 and 2023 in a municipality in the Colombian Amazon region, with the aim of formulating strategic recommendations for future public initiatives.
Design/Methodology: A descriptive quantitative methodology was adopted, drawing on a sample of 169 entrepreneurs who had benefited from the *Ruta Florencia Emprende* program. The analysis combined ex-post evaluation, a competitiveness index, the chi-square test, and data envelopment analysis to assess relative efficiency.
Findings: The results reveal a limited impact of the program, suggesting that entrepreneurship in the region is driven primarily by necessity rather than opportunity. Although the vast majority of entrepreneurs strengthened some operational effectiveness and competitiveness skills, they continue to operate their businesses despite the challenges they face.
Conclusions: Future regional entrepreneurship programs should give considerable weight, in their terms of reference, to entrepreneurs' ability to identify and pursue market opportunities, their business experience, and the conditions that enable innovation within each value proposition.
Originality: The main contribution of this study is the development of a model for evaluating the impact of entrepreneurship programs in regions of developing countries, a context that has received little attention in the scientific literature. The model also makes it possible to establish strategic proposals for strengthening opportunity-driven entrepreneurship and thus contribute to regional development.

* Project Code 2024-02: Gastronomic Tourism: Toward Strengthening the Florencia, Caquetá Destination Brand. The University of the Amazon (Florencia, Caquetá) was the institution that approved funding for the project through an institutional call for proposals. The research group that carried out the project is the Marketing and Territory (MARTE) group, classified as Category C by Minciencias.

Keywords: entrepreneurship programs, impact evaluation, opportunity-driven entrepreneurship, business competitiveness, public policy evaluation.

Highlights

- The proposed model builds on the conceptual evolution of entrepreneurship.
- The model makes it possible to measure the effects of entrepreneurship support programs.
- The results point to ways of optimizing regional business support initiatives.
- The study examines how the model is applied in a region of Colombia.

RESUMEN

Objetivo: Este estudio evaluó el impacto de los programas gubernamentales de fomento del emprendimiento implementados entre 2020 y 2023 en un municipio de la región amazónica colombiana, con el propósito de formular recomendaciones estratégicas para futuras iniciativas públicas.
Diseño/Metodología: Se adoptó una metodología cuantitativa de carácter descriptivo, basada en una muestra de 169 emprendedores beneficiarios del programa «Ruta Florencia Emprende». El análisis combinó la evaluación *ex post*, un índice de competitividad, la prueba de chi-cuadrado y el análisis envolvente de datos, este último utilizado para evaluar la eficiencia relativa.
Resultados: Los hallazgos revelan un impacto limitado del programa, lo que sugiere que el emprendimiento en la región está impulsado principalmente por la necesidad y no por la oportunidad. Aunque la gran mayoría de los emprendedores fortaleció algunas competencias relacionadas con la eficacia operativa y la competitividad, continúa operando sus negocios pese a los desafíos que enfrenta.
Conclusiones: Los futuros programas territoriales de emprendimiento deberían dar mayor énfasis, en sus términos de referencia, a la capacidad de los emprendedores de identificar y aprovechar las oportunidades de mercado, a su experiencia empresarial y a las condiciones que favorecen la innovación en cada propuesta de valor.
Originalidad: La principal contribución de este estudio es el desarrollo de un modelo para evaluar el impacto de los programas de emprendimiento en regiones de países en desarrollo, un ámbito poco abordado en la literatura científica. Además, el modelo permite plantear propuestas estratégicas para fortalecer el emprendimiento orientado a oportunidades y contribuir así al desarrollo regional.

Palabras clave: programas de emprendimiento, evaluación de impacto, emprendimiento por oportunidad, competitividad empresarial, evaluación de políticas públicas.

Highlights

- El modelo parte del reconocimiento de la evolución conceptual del emprendimiento.
- El modelo facilita la medición de los efectos generados por programas de fortalecimiento al emprendedor.
- Los resultados proponen optimizar las iniciativas de apoyo empresarial territorial.
- El estudio examina la aplicación del modelo en un contexto regional colombiano.

1. INTRODUCTION

Territories achieve high levels of competitiveness through economic development (Arshed et al., 2014; Blackburn & Smallbone, 2008), which integrates variables such as the progress of the productive sector and the improvement of the living conditions of its inhabitants, among others (Consejo Privado de Competitividad, 2023). Márquez Ortiz et al. (2020), citing Aristotle, states in terms of "economic development" its capacity for the structural transformation of the strategic schemes of a public or private organization to obtain high levels of satisfaction of the needs of the population, allowing them to increase their general welfare conditions. Under this approach the notion of entrepreneurship undertaken is as an opportunity for their own progress and the decrease of labor indicators such as unemployment and poverty (López-Rodríguez et al., 2021). Mendes et al. (2023) asserts that this works as long as it is implemented from the principles of innovation and management, forming a triad that points out the main success factor for the competitive development of each sector of the economy or according to a politically organized territorial context. Hence, it is necessary to link ambidexterity, a concept that enables a clearer reading of inter-organizational relationships that include alliances and values such as trust to maintain the links between the members of the social or economic entity.

At the same time, Bayona-Oré (2022) recognizes that when talking about entrepreneurship, innovation as a process accelerates a whole creative transformation that allows people to develop and validate ideas for employment and obtain different sources of income. Within this initiative, it is necessary to recognize the competencies of those who take on the challenge of entrepreneurship, since their position in times of crisis heightens these performance skills, which must bear in mind elements of resilience, self-efficacy and adaptation to change; for this reason, training spaces that stimulate the entrepreneurial spirit are crucial (Backes et al., 2022; Copelli et al., 2022). Additionally, entrepreneurship is recognized from new perspectives such as the one developed from sustainability (Boscán Carroz et al., 2023), which shows its scope for the fulfillment of the 2030 Agenda from its functionality: innovation, opportunity, responsibility, quality, creativity, and capacity (Benavides-Sánchez et al., 2022).

The regulatory framework for entrepreneurship in Colombia has evolved from an approach focused on promoting an entrepreneurial culture toward a comprehensive ecosystem that supports the creation, consolidation, and growth of all the major business sectors in each region. Law 1014 of 2006 served as the starting point by laying the groundwork for fostering entrepreneurship as a cross-cutting competency in the education system and by promoting coordination among the government, universities, and the private sector through the creation of entrepreneurship networks. Subsequently, Law 590 of 2000 and its amendment (Law 905 of 2004) strengthened the development of SMEs by recognizing them as key players in job creation, economic growth, and national competitiveness. Complementing this framework is Law 1258 of 2008, which revolutionized business creation by introducing the simplified joint-stock company (S.A.S. in Spanish)—a flexible legal structure that reduced costs and red tape, thereby facilitating the formalization of new ventures.

The consolidation of the entrepreneurial ecosystem was strengthened by Law 2069 of 2020, considered the most significant regulatory update in this area, as it incorporated measures to facilitate access to financing, promote innovation, encourage public procurement from SMEs, streamline administrative procedures, and foster entrepreneurship among women, young people, and rural residents. In addition, Law 1834 of 2017 promoted the development of the "orange

economy," expanding opportunities for culture-based ventures, while Law 2234 of 2022 incorporated social entrepreneurship as a strategy to simultaneously generate economic value and social well-being. All of the above has also been reflected in territorial development plans, where each public administration seeks to strengthen regional progress through entrepreneurship programs, especially for vulnerable individuals or those who are starting their operations as future entrepreneurs and are currently in the informal sector. Table 1 presents some municipalities that promote entrepreneurship in their localities, in comparison with their current population and the indicators proposed for the subject under study.

Table 1. Entrepreneurship development in Category 2 municipalities (2020–2023)
Tabla 1. Desarrollo del emprendimiento en los municipios de categoría 2 (2020–2023)

Municipality	Population	Entrepreneurship Progress
Florencia	177.946	Development of the Florencia Emprende program to strengthen business units with supplies and work materials for 300 enterprises.
Girón	174.465	The estimated number of enterprises advised through training is 232, and no business plans have been accompanied or formulated.
Piedecuesta	190.712	We trained and certified 1,019 new enterprises and microenterprises in both the urban and rural sectors. Entrepreneurship programs were designed with a differential approach, prioritizing victims of the armed conflict and other victimizing events. Support was provided for entrepreneurship and trade fairs in the municipality. There are no statistics that reveal the impact of these activities.
Sogamoso	136.391	It was planned to strengthen 90 enterprises with supplies and production support material. It is recognized that there is no information system to diagnose the situation of entrepreneurship in the city.
Jamundí	180.917	No data or results are presented in relation to the management for the strengthening of enterprises. For this new governmental period, it is intended to implement an "Incentive Program" for companies that hire and create jobs.
Facatativá	166.588	Technical assistance and productive and business support were provided to 20 enterprises, and 33 people were trained in entrepreneurship and innovation culture.
Fusagasugá	165.143	108 companies and/or associations benefited from financial incentives. Seventy early-stage companies received technical assistance.
Zipaquirá	155.618	Three business management programs have been developed for productive units, and 243 enterprises have received professional assistance in finance, marketing, administration and operations in various economic sectors, and twenty structured business plans have been developed.

Source: Prepared by the authors based on the diagnoses of the municipal development plans for the 2024-2027 period.

When comparing the population size of municipalities with the reported indicators used to assess compliance with entrepreneurship programs, it becomes apparent that the expected or achieved results do not reflect a contribution proportional to the potential needs of each territory. In practical terms, the number of entrepreneurs served represents a small fraction of the population that could benefit from these initiatives, suggesting limitations in their reach and impact. This situation highlights the need to periodically evaluate the impact of these programs to determine whether the planned activities are meeting the established objectives for strengthening entrepreneurship. The results of this analysis will provide empirical evidence to rethink the design, targeting, and implementation mechanisms of these interventions, orienting them toward greater coverage, relevance, and effectiveness based on the characteristics and territorial needs of each region.

To put this research problem into context, as a case study, it is noted that unemployment in Florencia, Caquetá (Colombia), currently stands at 14%, making it the fourth city in the country with the highest number of economically active people without steady employment—a figure higher than the national average (9.6%). Consequently, during the city's most recent municipal administration (2020-2023), the "Ruta Florencia Emprende" program was implemented annually. With a capacity of 75 entrepreneurs per session, the program sought to guide and train them to improve their business management and identify their technical needs in order to strengthen their businesses with inputs, goods, or supplies. Each participant attended training sessions totaling up to 30 hours on topics such as business plan development, financial management, and innovation methodologies to improve their value propositions. At the end of the program, they received supplies worth an average of one million pesos to help improve their business productivity. The four editions of this program had the same participation requirements; the only difference was the opportunity provided to new entrepreneurs.

Based on the foregoing, the following question is formulated as a research problem: How can the impact of the "Ruta Florencia Emprende" entrepreneurship program be evaluated over a four-year period as a regional benchmark for future assessments of such programs on this topic, with findings that will enable the formulation of strategic recommendations for future initiatives by regional governments? To answer this question, the following objectives were formulated: i) Characterize the businesses of the stakeholders who participated in capacity-building activities in recent years, b) Compare the ex post evaluation and the competitiveness index based on the perceptions of participating entrepreneurs (2020-2023), and c) Analyze the relative efficiency of the production units to verify their capacity to generate products using the inputs provided through the capacity-building program.

2. THEORETICAL FRAMEWORK

The following section presents a theoretical compilation of references on two fundamental categories of analysis in this study: a) entrepreneurship and the evolution of the concept from the perspective of public management, and b) advances in the development of impact evaluation models for entrepreneurship programs. It primarily recognizes the principles that have allowed for an understanding of entrepreneurship, from its nature as a development opportunity to survival strategies in emerging economies.

Dávila-Morán (2022) reports on the type of entrepreneurship that has been investigated before and during the pandemic. Its main conclusions refer to a theoretical conceptualization of

entrepreneurship beyond the capabilities of scientific research for its application and review of its incidence. The idea of understanding this term from the analysis of environmental conditions, i.e., external factors, and the maintenance of synergy with management, as a complement to the management results in each scenario (territorial context, for example) where it is addressed, is rescued. Comparative interdisciplinary theories are even introduced in the way they are conceptualized and used in the academic and business world with the need for a holistic understanding of their definition for society (Ratten, 2023).

In fact, one of the necessary components for entrepreneurship is the strategic thinking, an ability that allows, through creativity, to establish different perspectives of action to improve decision making towards financial and non-financial objectives of each business (Chávez Vera & Calanchez Urribarri, 2022), as a starting point to identify the complex systems, challenges and trends assumed by people who bet on the creation of companies. The corporate spirit articulates entrepreneurship with the subject's capacity to evaluate options that adjust the conditions of the entity to the reality of the environment that controls it. This is justified from members of a social group who are able to identify and take advantage of growth opportunities in a free market economy, forming various initiatives such as rural initiatives, which prosper over time by assuming a vision of territorial development (Torre, 2015) which has been identified in areas where progress and economic development is limited, and natural resources abound but there are deficiencies in their management (Arias-Vargas et al., 2022). These elements generate a constant criticism of the development model assumed by the Modern State, which excludes the entrepreneur who does not reach the category of businessman (Cruz Bolaños & Cifuentes-Leiton, 2021).

“Entrepreneurship is displayed as the answer for those excluded from the dynamics of the capitalist economic system. The categories employee and entrepreneur are not sufficiently robust in an economic-productive system that is based on the concentration of wealth, thus generating waste in the division of capital. Those who do not belong to these categories are marginalized, but must continue to struggle to achieve adherence” [El emprendimiento se presenta como la respuesta para los excluidos de la dinámica del sistema económico capitalista. Las categorías empleado y empresario no son lo suficientemente robustas en un sistema económico-productivo que está basado en la concentración de riqueza, por ello genera residuos en la división del capital. Aquellos que no alcanzan a pertenecer a dichas categorías son marginados, pero deben seguir luchando para alcanzar la adherencia] (Cruz Bolaños & Cifuentes-Leiton, 2021, p. 149).

Escobar (2014) also ponders on the role of the State and the consequences of its actions and omissions, highlighting: a) the incapacity of its functions, b) the hostage of the State by agents promoting capital accumulation for their own benefit and, c) the weakening of local political organization processes to manage its resources. Against this background of dichotomies and uncertainties, the idea of entrepreneurship should assume another semantic notion whose epistemological bases stem from the local as a political option (Escobar, 1998).

From another perspective, entrepreneurship is not a simple process. In the opinion of López-Rodríguez et al. (2021) it is characterized by a high level of complexity due to the tight articulation that must be achieved with the acquisition of resources, personal skills and public policies of the territory where the entrepreneur intends to undertake. The author acknowledges that in countries with low levels of development there are obstacles for entrepreneurship, typical of the productive ecosystem that causes entry barriers to have wide gaps (Stam et al., 2006), where it is only possible

to enter when innovation is achieved by making generic enterprises become specific; that is to say, by strengthening differentiating productive relationships. In the Colombian setting, statistics show these conditions as shown in Figure 1, confirming that entrepreneurship is born as a need and contributes negatively to microenterprises because they are not formed as companies but as natural persons, which causes survival to decrease by up to 27%.

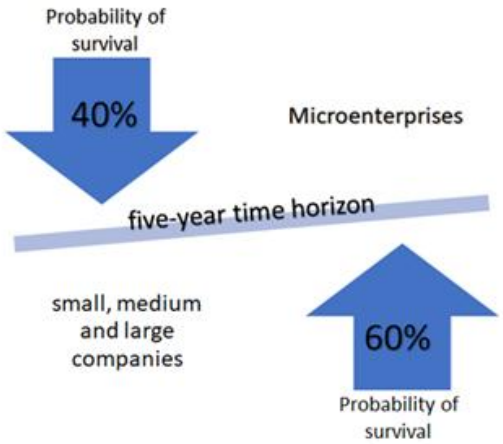


Figure 1. Odds of business survival
Figura 1. Probabilidades de supervivencia de las empresas
Source: Own elaboration based on López-Rodríguez et al. (2021).

Here arises the need to clarify, as stated by López-Rodríguez et al. (2021), whether the entrepreneurships are being founded based on a need or based on an opportunity (Acs & Amorós, 2008; Reynolds et al., 2002; Valliere & Peterson, 2009). In the latter case, better prospects for survival are foreseen, since the financial objectives are oriented to the productive specialization of a specific cluster, which allows greater contributions to the region such as the generation of jobs. What Lloret (2020) assumes as the implementation of a startup that can survive beyond the fourth year of operation with the development of three important production factors: the human team and its management, the product or means of satisfying needs with better competitiveness indicators and the business model.

Almodóvar (2018) reasserts the idea that it is the specific entrepreneurships that generate greater benefits than the generic ones, including from his own logic the latter are included within the former and are defined as "any act of entrepreneurship, regardless of its characteristics, so it does not respond to a specific type of entrepreneurial activity" [cualquier acto de emprendimiento, sin tener en cuenta sus características, por lo que no responde a un tipo específico de actividad emprendedora] (p. 226).

On the other hand, Diaz et al. (2021) recognize certain correlations between the variables that are compared with the concept of entrepreneurship. For their position, there is a positive relationship with the probability of establishing consolidated businesses; likewise, academic training and fear of failure (Morris et al., 2024) achieved a negative relationship within the findings of the aforementioned authors. In these two cases, the education of entrepreneurs is crucial for the attainment of technical and soft skills, as well as a proper articulation with public management to strengthen economic programs that bet on this challenge within each territorial entity (De Clercq et al., 2010; Meyer et al., 2009), until achieving the modernization of a State capable of granting certain humanizing

characteristics to capitalism through a solidarity economy (inclusive business), and less aggressive and inclusive models with citizens (Jurado Paz, 2022). Thus, one of the main commitments of public management is to eliminate poverty indices in all spheres by ensuring that every citizen has the right to participate in the wealth of his or her own territory (Finke et al., 2021). Muñoz (2020) defines it as territorial public management (TPM), conceptualized as the capacity for transformation to implement each government program and strategy in accordance with diverse and complex social, environmental, economic, cultural, and political realities, while understanding the dynamics of a region—including its limitations and strengths—to promote the social well-being of communities.

Morris et al. (2022) explain that within entrepreneurship schemes, the concept of "poverty responsibility" may be established, which is related to the psychological and resilient capacity of the entrepreneur associated with his or her technical (illiteracy) and behavioral (scarcity mentality) deficiencies. This mechanism tends to reduce their leadership skills and strategic vision to take advantage of opportunities (Morris, 2020) and therefore increases the chances of poverty. Even from the ideas put forward by the author, this commitment is not overcome by teaching people living in poverty to be entrepreneurs, although depending on the ability of each one, benefits may be obtained if the position of a passive agent is transformed into an asset for prosperity. Of course, it is essential to understand this approach in conjunction with the efforts and actions that the State must assume in its social function. In this situation, the important thing is to anchor the economic development generated by entrepreneurship in the territorial dynamics by formulating programs that strive for the fostering of productive and competitive markets, as well as the generation of employment and the reduction of poverty rates, bringing each individual closer to a better quality of life or socioeconomic wellbeing (Mayer Granados et al., 2020).

The spirit of entrepreneurship, its formation and study, may be a mechanism of action to improve the impacts of entrepreneurship on the development of regions. Santos et al. (2022) described that this ability can be a trigger to reduce poverty, given that the same experience in some particular geographical cases shows how entrepreneurs assume a series of motivations beyond achieving economic ends, seeking to improve their social and ethical conditions from the intention towards sustainability and care of the environment. Even so, it should be recognized that poverty as a social scourge has implications for the sustainability of business units that cause disadvantages associated with low negotiating capacity, inadequate specialization of work and the allocation of resources without proper planning (Morris, 2020).

Morris and Tucker (2021) provide some solutions to the effects of the "responsibility of poverty" by investigating in developed economies where the ability of the entrepreneur with scarce resources is enhanced by public policies and community action. On this situation, the promotion of entrepreneurship is emphasized as an element that energizes the challenges of entrepreneurship in underdeveloped economies where more attention is paid to this aspect from the principles and symbolisms of poverty to the point of the identification of a conceptual framework called SPODER that fosters such spirit in the poor from: "(S) supportive infrastructure, (P) entrepreneur readiness; (O) expanded opportunity horizons; (D) finding sources of differentiation; (E) a well-designed economic model; and (R) leveraging community resources" (Morris et al., 2020, p. 377).

To date, theoretical evidence has been presented regarding the ways in which entrepreneurship can arise from two perspectives (out of necessity or opportunity)—the effects of which may vary, or one may be more effective than the other—and the role that public administration plays in supporting

and promoting it. Now, the need is highlighted to identify empirical cases in the literature that demonstrate the methodologies used to evaluate the impact of entrepreneurship support programs. Angulo Luna et al. (2022) reviewed the key factors evaluated in entrepreneurship and innovation practices within a university context, including: a) the technological development generated; b) the comparison between the proposed and actual market segments; c) the historical structure of revenues and costs compared to that projected at the start of the business; and d) the benefits of good practices for the environment and its stakeholders. For this study, an ex post evaluation was used, considering the following variables: Effectiveness, Efficiency, Relevance, Feasibility, and Impact.

Methodologies were identified for evaluating the impact of entrepreneurship programs, ranging from meta-analyses of rigorous evaluations to ex post designs using quasi-experimental methods. The latter aim to estimate causal effects on business outcomes. In Spain, for example, the difference-in-differences method was applied in a region with a high number of beneficiary entrepreneurs, identifying a positive impact on reducing unemployment (Fanjul et al., 2023). Similarly, in Nigeria, an ex post facto design was used with secondary data from the Dynamic Entrepreneurship Index, revealing institutional weaknesses such as low technology absorption and limited product innovation (Ibrahim, 2026). Alvarado-Villanueva et al. (2020) proposed an ex post evaluation of a project to improve production chains (coffee and cocoa) with a sample of 222 beneficiaries, demonstrating that this impact assessment method generated sufficient information to inform the implementation and improvement of public policies regarding investment quality.

Furthermore, the Inter-American Development Bank's (IDB) competitiveness analysis examined corporate productivity and financing for growth in emerging markets, focusing on how interventions can address multiple constraints sequentially (Didier & Cusolito, 2024). On the one hand, Imbruno and Grover (2020) revealed knowledge gaps regarding the effectiveness of instruments such as incubators and accelerators, which remain under-evaluated due to a lack of rigorous research designs. On the other hand, Cho and Honorati (2014), through a meta-regression of thirty-seven evaluations, found that entrepreneurship programs have a significant positive impact on youth and entrepreneurial knowledge, but without an immediate translation into business creation or increased income.

Finally, no empirical evidence was found regarding the use of Data Envelopment Analysis (DEA) to assess the impact of entrepreneurship programs in emerging markets; this presents an opportunity to complement such impact assessments with the other two methods (ex post analysis and competitiveness analysis), which, despite being present in contemporary studies, have been applied in isolation. Furthermore, no progress was evident in the use of methodologies for evaluating the impact of entrepreneurship in emerging economies.

3. METHODOLOGY

This research was based on the use of a quantitative approach (Creswell & Creswell, 2018) with a descriptive typology (Hernández Sampieri et al., 2014). Hence, the population consisted of three hundred (300) entrepreneurs who participated with their businesses in the development of the program called Ruta Florencia Emprende during the years 2020 to 2023 in the capital of the department of Caquetá, Colombia (Figure 2), according to the database provided by the Secretaría de Emprendimiento

y Turismo of the Florencia Mayor's Office. In this case, a total of one hundred and sixty-nine (169) beneficiaries of the program were sampled from a probability sample (finite population) with a confidence level of 95% and a 5% margin of error.

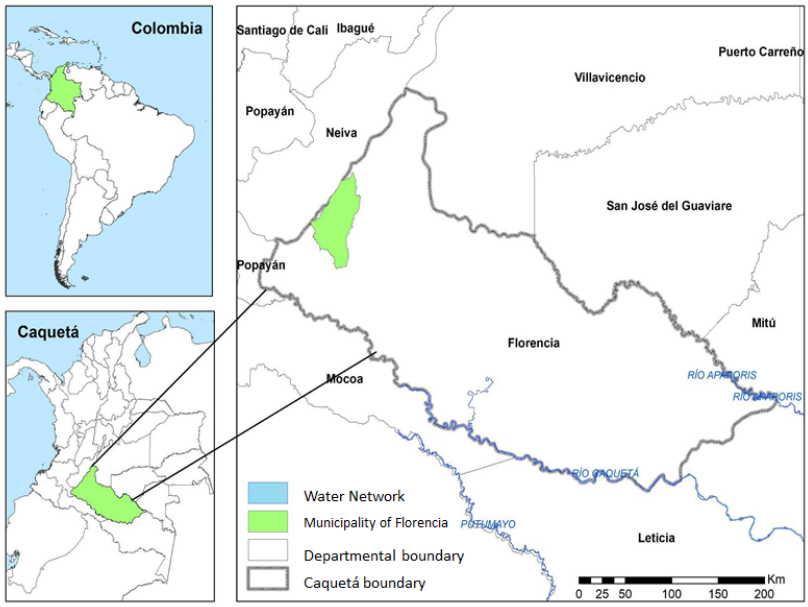


Figure 2. Map of Florencia, Caquetá (Colombia)
Figura 2. Mapa de Florencia, Caquetá (Colombia)
Source: Own elaboration.

The study was carried out in three stages, which are described below. The first, called Diagnosis, involved the construction of a structured questionnaire with closed and open-ended questions that was approved as valid and reliable in terms of form and content by experts in linguistics and entrepreneurship, respectively. In terms of validity, the questionnaire achieved an average score of 4.3, which placed it in the applicable range, and in terms of reliability, the Cronbach's Alpha coefficient was applied, which was calculated at 90 %, i.e., susceptible to be used. With the application of this questionnaire to the calculated sample, the first objective of the research was achieved by characterizing the entrepreneurial population that participated in the program in question.

Table 2. Ex-post evaluation variables and competitiveness index
Tabla 2. Variables de la evaluación ex post e índice de competitividad

Ex-post evaluation variables	Items Evaluated	Competitiveness Index Variables	Items Evaluated
Relevance	5	Infrastructure	5
Efficiency	5	Human Capital	5
Effectiveness	5	Innovation	5
Impact	5	Financing	5
Sustainability	5	Labor market	5
		Business Environment	5
		Foreign Trade	5
		Institutionality	5

Source: Own elaboration based on Angulo Luna et al. (2022) and Panduro Saboya (2022).

In a second phase, the Ex post of the "Florencia Emprende" program was evaluated from the reality of each entrepreneur, after their participation in the program, and the competitiveness index of the enterprises was calculated taking into account the variables shown in Table 2. In addition, the level of correlation between the two aspects evaluated was computed.

To further complement this phase, Pearson's non-parametric Chi-square test was used to estimate two types of hypotheses (H0, null and H1, alternative) related to the variables gender (male and female) and the entrepreneur's attitude towards the changes after participating in the program (favorable, neutral, unfavorable).

H0 - The two variables are unrelated.

H1 - The two variables are related to each other

Equation 1 shows the estimated formula:

$$X_c^2 = \sum \frac{(O_i - E_i)^2}{E_i} \qquad (1)$$

Where, X^2 is the Chi-square statistic, 0_i are the observed frequencies and E_i are the expected frequencies. This independence test deducts the rejection of the null hypothesis if the value of the statistic is greater than the calculated critical value, otherwise its acceptance is expressed.

Finally, a comparative analysis of the relative efficiency of the sample of enterprises was made using DEA (Cooper et al., 2011), based on the studies of Simón de Blas et al. (2007) who consider that efficiency is contemplated in the comparison of an organization with a reference or of a group of organizations among themselves and that this always appears to be related to the minimum use of resources to obtain a certain volume of products. Table 3 shows the types of inputs and outputs for this analysis, which were selected after a complete exhaustive I-O stepwise debugging process (Senra et al., 2007).

Table 3. Conventions used for outputs and inputs

Tabla 3. Convenciones utilizadas para las entradas y las salidas

Acronym	Description	Input	Output
INTIME	Business operating time	X	
INRECUR	Amount of operating resources of each business	X	
INPEOPL	Number of people in charge of the business	X	
INPLAN	Number of business plans formulated	X	
OUTSFIN	Businesses maintained and financially stable		X
OUTEMP	Businesses with jobs generated		X
OUTOPER	Businesses with operational capacity increase		X

Source: Own elaboration.

Five sub-models were set up (Table 4) to determine the level of efficiency or inefficiency of the elements, which are determined by the others with which they are being compared, because despite the condition that the selected businesses are homogeneous, each one has characteristics that make them unique. The information for the analysis and development of this phase was collected with the questionnaire described in the diagnostic phase.

Table 4. Input and output variables included in each submodel

Tabla 4. Variables de entrada y salida en cada submodelo

Items	Inputs				Outputs		
	INTIME	INRECUR	INPEOPL	INPLAN	OUTSFIN	OUTEMP	OUTOPER
SUB-MODEL 1	X	X	X	X	X	X	X
SUB-MODEL 2				X	X	X	X
SUB-MODEL 3		X	X		X		
SUB-MODEL 4	X			X	X	X	X
SUB-MODEL 5		X		X	X		

Source: Own elaboration.

It is important to clarify that a single questionnaire was designed for all phases, which included the following items: i) questions to characterize the business, in order to assess its operational status, progress or achievements, and situation regarding the vision of organizational sustainability and the likelihood of formalizing the commercial activity; ii) questions based on statements designed to evaluate the ex-post variables (Angulo Luna et al., 2022) and competitiveness (Panduro Saboya, 2022) set forth in Table 2. In this case, a Likert scale (with five options ranging from 1 to 5) was used, which allowed for the identification of ranking alternatives based on the entrepreneur's business and personal reality regarding their production unit, iii) closed-ended questions that inquired about the quantification of inputs and outputs (Table 3), which measured relative efficiency (Rodríguez Lozano & Tarazona Morales, 2015) with respect to the submodels proposed in Table 4. Following the fieldwork, all calculations were performed using IBM SPSS Statistics 23 and/or Microsoft Excel.

The DEA methodology is appropriate for the impact assessment in this study because it overcomes the limitations of traditional efficiency indicators, which only analyze the relationship between resources used and results obtained. In contrast, DEA simultaneously evaluates multiple input and output variables (operating time, existing operational resources, job creation, business plan development, financial management, and increasing operational capacity) by constructing an efficiency frontier that facilitates comparison among homogeneous production units and identifies which ones effectively transformed their resources into results. It serves as a complementary method for identifying impact, covering not only the provision of physical resources and their contribution to the venture but also the scope of other actions such as consulting and/or training.

4. RESULTS

The following presents the proposed model for evaluating the impact of the "Florencia Emprende" Program for the years 2020-2023, beginning with a profile of the participants and their business units. Next, the first element of the impact was measured, which refers to the ex post evaluation and competitiveness factors that analyze changes in the operations of each startup. Then, as a second element, the sub models representing other variations within the business operations of most participating businesses were established based on the measurement of relative efficiency.

Starting Point of the Impact Assessment Model: Current Situation of the Participants

Of the 169 entrepreneurs who participated in the study, it was estimated that 78% were women and 22% were men. Based on this, more than 50% of all participants were between the ages of 30 and 44 as of November 30, 2023. Of these, 21% were between the ages of 20 and 24, and 14% were over 50.

The study also shows the place of residence of the participating entrepreneurs, revealing that 88% live in urban areas and 12% in rural areas. Regarding the companies' years in operation as of November 30, 2023, 61% had been in business for one to three years, 25% for four to six years since their founding, and 14% for more than seven years. It is important to note that only 13% of these companies had registered as merchants with the Chamber of Commerce at least once since participating in the "Ruta Florencia Emprende" program.

In terms of social characteristics, entrepreneurs were grouped according to the specific demographic category to which they belong—that is, population groups with an identified vulnerability. The largest group (37%) consists of female heads of household; likewise, young people (up to age 28) account for 26%, followed by indigenous people at 10%. It was confirmed that 14% of the participating entrepreneurs do not belong to any of these focus groups. Eighty-six percent of business owners confirmed that they were victims of the armed conflict.

Furthermore, 91% of the participants have only completed technical secondary education or what is commonly known in Colombia as high school. Two people lack formal academic training, and four have attained a professional degree through a bachelor's degree from a higher education institution.

As for the main industrial, commercial, and/or service activities of the participating businesses, one-quarter are engaged in the production of food for final consumption, 17% in businesses related to aesthetics and beauty services, and one-third in the production of handicrafts. Other activities with a smaller share include the manufacture or alteration of clothing and the sale of groceries.

To conclude this initial assessment, we calculated the average monthly income these businesses have earned in recent periods as a result of their sales following their participation in the "Ruta Florencia Emprende" program. It is worth noting that 97% have not exceeded, from the sale of their goods or services, a level of one million three hundred thousand Colombian pesos, approximately 329 dollars (exchange rate of 3,949.36 COP at the time of the comparison).

Entrepreneurs recognize financing systems as the key factor in the development of their businesses, in line with the findings of Callejón Fornieles and Castany Teixidor (2008), which are at the center of the debate and are considered indispensable, necessary, and essential for ensuring the continuity of business-strengthening programs. In this regard, participants acknowledged that job training and technical skills should be prioritized, without exceeding the time and resources allocated to these activities, especially when individuals must devote most of their time to their businesses and/or enterprises. One of the limitations identified in the discussions is a lack of resources—specifically, working capital—to carry out their business activities. They confirm the idea that they must include in their household budgets the expenses associated with productive development, which often do not even reach the break-even point.

Subsequently, they acknowledge that their entrepreneurial intent is not primarily focused on regional development, but rather on family and personal survival, due to the lack of opportunities in the region caused by factors such as unemployment or social stigmatization stemming from age and educational background (such as the ability to create a resume highlighting academic qualifications and relevant experience). Therefore, they do not consider the development of sophistication and innovation to be key to improving their businesses' value propositions. They believe that, to achieve this, greater resources would need to be provided.

Regarding collaboration and a differentiated approach, two perspectives emerge. The first is a reluctance to form solidarity groups or associations to work in synergy. The few experiences reported during data collection reveal a lack of interest in this option, especially when there is no clear definition of what it means to work as a community. Some people referred to forming associations as a way of impoverishing oneself, since not all beneficiaries have the same guarantees of being able to take advantage of what is provided to them to strengthen their businesses.

Phase 1 Results: Ex-post Evaluation and Calculation of the Competitiveness Index

Table 5 shows the ranges used to calculate and grade the average scores for both the ex post evaluation factors and the competitiveness variables. The instrument used for this measurement included a series of Likert-scale statements that assessed each business's performance level from the perspective of its owners. Each factor (group of items) was weighted based on the calculation of a weighted arithmetic mean.

Table 5. Average rating range

Tabla 5. Rangos de puntuación promedio

Qualitative qualification	Value range
Deficient	1,00 – 1,99
Insufficient	2,00 – 2,99
Acceptable	3,00 – 3,99
Outstanding	4,00 – 4,99
Superior	5,00

Source: Own elaboration.

Figure 3 shows the average scores for the factors in the Ex Post Evaluation, none of which reach acceptable levels of incidence or positive impact. Sustainability stands out as the factor with the highest average score (2.58), followed by impact (2.55) and effectiveness (2.50). This suggests that, following their participation in the entrepreneurship program, most participants—in managing their businesses—failed to achieve results in line with their organizational objectives. Furthermore, the level of productivity (better use of resources) was limited; moreover, the relevance of the resources or knowledge provided was not consistent enough to lead to achievements or progress in the production units, and therefore the impact was not as expected from that perspective. In the case of the highest-performing variable—sustainability, defined as the viability of establishing a promising future for the business—this result may have been driven by the participants' desire for subsistence given the reality of poverty and unemployment evident in the region.

Consequently, although the entrepreneurship program's intervention did generate some learning opportunities (technical assistance) or immediate benefits (inputs), it failed to produce lasting changes in income generation, business stability, or improvements in the living conditions of its participants. This is consistent with programs that target populations facing structural constraints that exceed the scope of a strategy focused exclusively on entrepreneurship. This means that the program's strategy was not necessarily inadequate, but rather that this type of government intervention has limited scope when implemented among highly vulnerable populations and in areas with profound economic and social constraints. Therefore, in this case, it is essential that these initiatives be complemented by

policies on employment, financial inclusion, social protection, and guidance toward business choices from an "entrepreneurship of opportunity" perspective.

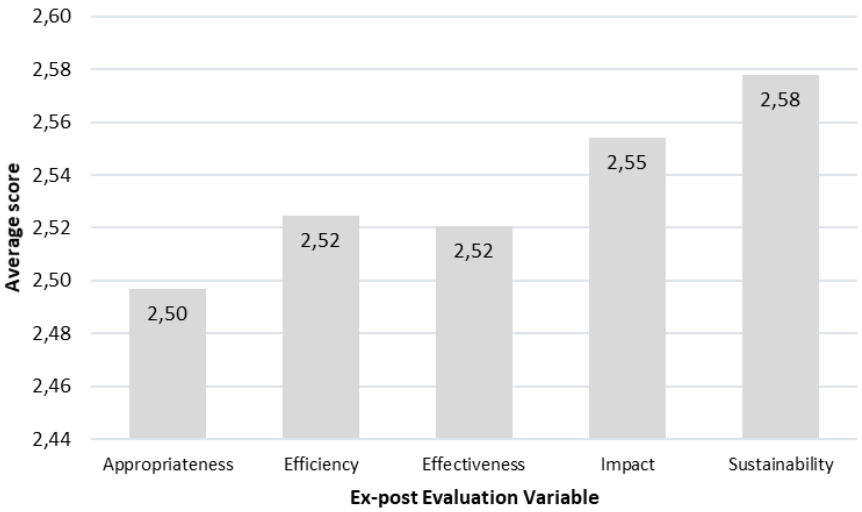


Figure 3. Average scores for the ex post evaluation factors
Figura 3. Puntajes promedio de los factores de la evaluación ex post
Source: Own elaboration.

The second set of results (Figure 4) presents the averages for the competitiveness variables of the enterprises under study, which also fail to reach acceptable levels of positive impact or influence. Innovation, foreign trade, and the labor market share the highest average (2.58), followed by financing (2.52) and infrastructure (2.52). In this regard, the interpretation should focus on the capacity that the participating enterprises developed to compete in the market once the intervention ended, which suggests the persistence of certain capacity constraints that limit their ability to sustain themselves and differentiate themselves as businesses in a demand-driven environment. From an impact evaluation perspective, the program failed to sufficiently strengthen the factors that determine the competitiveness of the enterprises, such as the ability to generate value, access new markets, innovate, manage resources efficiently, increase productivity, or consolidate advantages that are difficult for others to imitate.

This also highlights the need to complement the strategy for strengthening entrepreneurship in the region with other measures, including the development and consolidation of business support networks, opportunities such as tax exemptions during the early stages of a business prior to the eventual formalization of its commercial activities, and the promotion of economic dynamism through collaboration with other business sectors, such as tourism services.

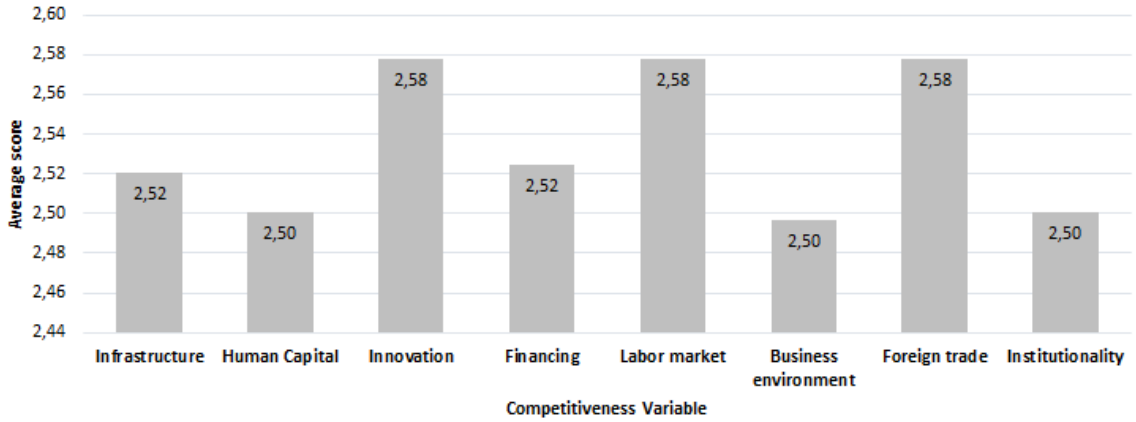


Figure 4. Average scores for the competitiveness variables
Figura 4. Puntajes promedio de las variables de competitividad
Source: Own elaboration.

At the end of this phase, the relationship between the ex post evaluation and the competitiveness of the startups that participated in the "Ruta Florencia Emprende" program was calculated, revealing a positive and significant correlation. In terms of variance (Figure 5), 97.62 % of the ex post evaluation (variable x) influences competitiveness (variable y). There is a positive relationship between the ex post evaluation and the competitiveness of the entrepreneurs who benefited from this capacity-building program. This correlation included a nonparametric Pearson chi-square test between the two variables (gender and attitude after participating in the program). The results are shown below:

Chi Square X^2 = 0.21; Freedom Degrees = 2; α = 0,05; Critical value = 5.81.

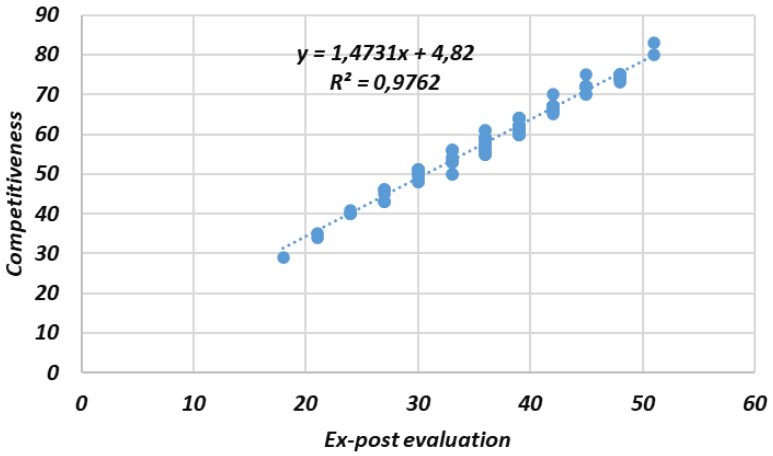


Figure 5. Level of dispersion between ex-post evaluation and competitiveness
Figura 5. Nivel de dispersión entre la evaluación ex post y la competitividad
Source: Own elaboration.

Since the value of the statistic is less than the critical value, the null hypothesis is accepted; that is, there is no relationship or dependence between the entrepreneur's gender and their attitude (favorable, neutral, or unfavorable) toward the program's impact on their business.

This suggests a consistent association between the performance of the capacity-building program and the competitive capabilities achieved by the startups once the intervention has concluded. This finding allows us to infer that higher ratings on ex post evaluation variables—such as efficiency, effectiveness, impact, or relevance—tend to be accompanied by a higher level of business competitiveness, demonstrating that capacity-building during the intervention correlates with the development of attributes associated with business performance. This interdependence calls for a comprehensive approach to evaluating entrepreneurship programs, in which the results of the intervention and the consolidation of technical, strategic, or managerial capabilities are analyzed in a complementary manner.

On the other hand, this first phase demonstrates that the impact assessment is not associated with the entrepreneurs' own characteristics or with their attitudes or perceptions. The results suggest that the limitations identified represent a cross-cutting pattern among beneficiaries rather than a differential effect associated with individual attributes, thereby reinforcing the idea that the territorial context and conditions of vulnerability exert a more decisive influence on the program's outcomes than the personal characteristics of those who participated in it.

Phase 2 Results: Measurement of Relative Efficiency

Looking at Figure 6, the highest number of efficient businesses was concentrated in Submodel 1, which grouped all inputs and all outputs: 59 %. This suggests that, when comparing the units, the number of efficient ones increases when a greater number of variables are considered in which they can exhibit different types of results or products; in contrast, Submodel 2 was the one that gathered the lowest number of efficient businesses in the enveloping surface: only 6 %, that is, only 10 elements.

Submodels 3 and 5 only had in common the output "Maintained and financially stable enterprises" and yet their results were not close in terms of businesses categorized as efficient. Nonetheless, it should be pointed out that the units that are efficient in Submodel 3 are completely different from the efficient ones in Submodel 5. The efficient ones in Submodel 4 scored better in "Enterprises maintained and financially stable" and "Enterprises with operational increase of their capacity" while the efficient ones in Submodel 2 scored better in "Enterprises with jobs generated".

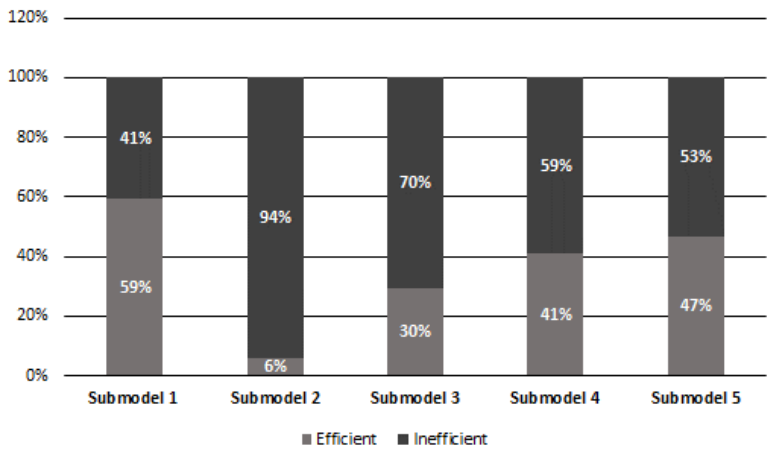


Figure 6. Consolidated indexes for Submodels 1–5
Figura 6. Índices consolidados de los submodelos 1 a 5
Source: Own elaboration.

The output with the least impact in the five sub-models was the creation of new jobs. It is important to point out, at this point, that the enterprises, most of which are not formalized, are in the stages of creation and sustainability to support part of the family economy of those who run them; therefore, the need for support for their due strengthening is evident. Future enterprises tend to become efficient of the five sub-models depending on the entrepreneur's knowledge, resilience and ability to acquire new ways to take their business to a higher level.

Consequently, this review of relative efficiency explains that technical advice, training, and support in the formulation of business plans are not enough, unless there is continuity of supervision within the process. Most of the enterprises stem from the need to obtain some source of income for personal or family benefit; the market orientation of these microenterprise units is not clear.

Units were identified which, due to their efficiency, become benchmarks for those with similar conditions in terms of quantity of inputs and levels of inefficiency; each group of benchmarks constitutes the basis for building and implementing a continuous improvement system where inefficient units can improve their efficiency levels. These are characterized by their capacity to work autonomously and creatively based on the tangible and intangible support they have received from the territorial public management and their perception of the sustainability of the business does not depend on government support but on the strategic component implemented to establish long-term growth systems and a true market orientation.

To prove the above, the correlation coefficient between the values of the calculated efficiency index and the values of the output variables is established (Table 6). The results show that the only output that has a significant impact on the relative efficiency index is “Financially stable and maintained companies”. However, the other two, albeit having a medium correlation strength, are not adequately representative to validate the calculated efficiency. This has an impact on the capacity of each business to contribute to territorial development through the generation of employment and business growth.

Table 6. Correlation coefficients between output variables and the efficiency index
Tabla 6. Coeficientes de correlación entre las variables de salida y el índice de eficiencia

Acronym	Description	Correlation	Correlation Strength
OUTSFIN	Financially stable and maintained companies	0,5	High
OUTEMP	Companies with jobs generated	0,39	Medium
OUTOPER	Companies with operational capacity increase	0,42	Medium

Source: Own elaboration.

From an impact evaluation perspective, this pattern suggests that the best outcomes were achieved when the intervention was approached in a comprehensive manner, coordinating available resources with the multiple expected outcomes. However, given that the ex post evaluation and the competitiveness index yielded low scores, it can be inferred that this relative efficiency was concentrated in a small group of ventures and failed to extend to the entire set of beneficiaries. Thus, the program was able to generate successful outcomes in specific cases, but these were not sufficient to significantly alter the aggregate performance of the target population.

The main contribution of the "Florencia Emprende" program was linked to business survival rather than to their competitive transformation. In a context of vulnerability, the continuity of entrepreneurial activity is a significant outcome, as it reflects businesses' ability to remain operational despite adversity. However, financial stability alone does not guarantee increases in productivity and competitiveness—factors that explain why these levels remained low during the impact assessment. Thus, the program under analysis produced a business stabilization effect, which favored the survival of participating businesses, albeit with limited capabilities. Hence the need to refine the planning of the state's territorial initiative by incorporating other complementary aspects, as previously mentioned.

5. DISCUSSION

The proposed impact assessment model for programs aimed at strengthening entrepreneurship in emerging economies—and especially in regions with development gaps and limited contributions to national productivity—highlights a prevailing reality that opens up new avenues of research into methodological approaches for analyzing the impact of entrepreneurship in these regions. Beyond considering whether the impact assessment was positive or not for the case analyzed, the study describes innovative interpretations and frameworks that call for a rethinking of the planning and approach of this type of government initiative, where training, technical assistance, and productive support are undeniably insufficient.

First, it should be noted that the model operates from a procedural perspective due to its complementarity with two evaluation approaches: on the one hand, it examines changes from an initial state to a final state, seeking to determine the extent to which startups achieve effective and competitive capabilities (Angulo Luna et al., 2022) after undergoing a process of cognitive and productive strengthening; on the other hand, it assesses how entrepreneurs transformed the resources they received into observable results following the intervention.

Second, it was shown that these municipal government initiatives have limited reach and lack proper follow-up. There is a need to begin transforming local public management (De Clercq et al., 2010; Meyer et al., 2009; Muñoz, 2020), starting with the design of development plans, to establish monitoring and impact assessment measures, that demonstrate not only the amount of resources provided to entrepreneurs or the completion of technical or specialized training programs, but also the transformational impact stemming from each entrepreneur's autonomy and commitment to regional development—at least in terms of job creation (Fanjul et al., 2023) and poverty reduction through their contributions to their own households or those of others (collaborators).

Third, the study highlights a critical perspective on entrepreneurship-strengthening programs targeting vulnerable populations. Based on this empirical analysis, it was concluded that, while their impact was minimal, they at least demonstrated the continuity of businesses within an individual, subsistence-oriented dynamic. This gives rise to a debate regarding the need to prioritize which type of entrepreneurship is most effective to support or strengthen: that which arises from an opportunity, where innovation and the development of competitive advantages come into play (Stam et al., 2006), or the type of entrepreneurship that arises from the need to generate alternative sources of income due to unemployment or other social circumstances (Acs & Amos, 2008; Ibrahim, 2026).

The proposed impact assessment model establishes a methodological and procedural framework suitable for use by public administrations so that, before planning programs to strengthen entrepreneurship, they can identify which factors or variables to consider in order to avoid conflating economic initiatives aimed at promoting regional progress (Torre, 2015) with those that address the social aspects of vulnerable populations (Morris et al., 2022), which require support not from a business perspective, but rather for the creation of commercial or strategic networks that strengthen other economies such as the solidarity economy or the popular economy (Jurado Paz, 2022; Mayer Granados et al., 2020; Morris & Tucker, 2021), which are currently on the rise—thanks to calls for proposals from international cooperation agencies—in areas such as Florencia (Caquetá) and its surroundings, where the effects of the armed conflict, the new conditions brought about by the Peace Accords signed in Havana (Cuba) and required for their implementation, and the drive to conserve Amazonian biodiversity as a source of sustainability for the planet's future (Arias-Vargas et al., 2022).

Programs, as an option, can guide the development of associativity as a strategy to improve social impact in communities with semi-homogeneous characteristics through differentiated or social inclusion approaches. In this way, a collective and collaborative process will be initiated that views entrepreneurship as an opportunity, moving away from the idea of "entrepreneurship for survival" (López-Rodríguez et al., 2021) and instead embracing the belief in the transformation of individuals into entrepreneurs (Cruz Bolaños & Cifuentes-Leiton, 2021).

In this vein, the government's commitment to public administration and its decision to conceptually define how it will approach entrepreneurship within its development plans are highlighted. Within the chosen framework, one of the strategic aspects that should underpin effective business strengthening is training programs designed to ensure that entrepreneurs not only acquire specialized knowledge but also recognize the importance of transitioning toward the formalization of their commercial activities and the regulatory conditions governing decent and fair working conditions (Diaz et al., 2021). Therefore, it is proposed that these programs should function as business schools and incubators with medium-term durations—that is, between two and three years—to validate the potential and viability of a business idea (Almodóvar, 2018; Lloret, 2020) in commercial, social, and permanent job creation terms (Gallardo-Vásquez & Sánchez-Hernández, 2014).

One of the challenges arising from this new, proactive vision of entrepreneurship must be to bring about a paradigm shift, focused on raising awareness and preparing citizens to become true entrepreneurs who, after receiving support in the form of initial investment, commit to continuing to run their businesses autonomously and independently, thereby avoiding the cultural notion of a permanent paternalistic relationship, which accepts the ambiguous argument that the state or the public sector (Escobar, 2014) are the only ones capable of rescuing businesses from crises through financing (Escobar, 1998).

6. CONCLUSIONS

The model proposed to evaluate the impact of the "Florencia Emprende" program shows insufficient impact, which is related to the conditions under which the call for entrepreneurs to join this initiative was issued (vulnerability assessment). It was confirmed that the beneficiary ventures have developed limited capabilities in terms of efficiency, effectiveness, or sustainability, as well as in competitive aspects or relative efficiency; however, there was agreement that the productive units continue to

operate under minimal production and marketing conditions. Thus, it is indicated that enterprises in the region continue to be established out of a pressing need stemming from unemployment or poverty, rather than an evident market opportunity characterized by the identification of competitive advantages and a direct commitment to regional development. Thus, the model proposes as its main practical implication a novel methodological approach for assessing the impact of this type of program, regardless of the participants' characteristics prior to the intervention.

Based on the design and implementation of this model, it was identified—as a theoretical implication—that regional public management must internalize and conceptually clarify entrepreneurship and its implications within its operational and technical implementation structures. This translates into redesigning its programs and initiatives to foster the creation of new businesses, going beyond the implementation of training plans, technical education, or specialized business assistance and the provision of economic incentives (in the form of inputs). These programs must prioritize complementary criteria such as employment policies, financial inclusion, social protection, and guidance toward choosing businesses with an "opportunity-based entrepreneurship" perspective. In addition to establishing commercial support networks, opportunities such as tax exemptions should be leveraged to promote business formalization and coordination with territorial development sectors, such as tourism services. This is to avoid confusing or conflating the interests of public policies aimed at social inclusion for vulnerable populations with initiatives to strengthen the region's productivity and competitiveness, which ranks among the lowest according to the Departmental Competitiveness Index (Consejo Privado de Competitividad, 2023).

Complementing the above, at the theoretical level, the debate continues on how to understand entrepreneurship from the perspective of territorial development. The results of the impact assessment model highlight the need to distinguish between subsistence-based entrepreneurship and that which is created with the organizational goal of sustainability. This points to a future line of research that emphasizes the need to clarify the conceptual or theoretical boundaries of entrepreneurship. At this point, we take the risk of suggesting that not every individual who engages in producing and selling a good or service—or merely marketing it—is an entrepreneur. Everything will depend on their market-oriented intentions and their autonomous and independent ability to adapt to changes in the environment and demand.

Another line of research, along the same lines, focuses on assessing the need to develop public policies to support entrepreneurship or the relocation of informal vendors within specific geographic areas. Predicting whether the promotion of opportunistic entrepreneurship, on its own, can serve as a sufficient mechanism to reduce poverty and promote social inclusion could be a research initiative that examines whether this is a structural problem, in which current programs are viewed as survival strategies for entrepreneurs who lack the working capital needed for their productive and commercial operations.

Among the main methodological limitations of this study is the difficulty in contacting some entrepreneurs who participated in the program under analysis, because they no longer resided in the city of Florence (they had relocated their business) or were engaged in different activities, and the business had been transferred or sold to a friend or family member. Another important limitation worth noting was the variation in the time elapsed between the end of the entrepreneurs' participation in the program and the conduct of the impact evaluation. Because the assessment was conducted at a single point in time (the fifth year), the business units did not have the same

timeframe to consolidate and demonstrate the effects of the intervention. For example, those who completed the program in the first year had approximately three years to achieve results; from that point onward, a reduction in the timeframe was observed for subsequent cohorts.

ACKNOWLEDGMENTS

The authors gratefully acknowledge the Universidad de la Amazonia and the Mayor's Office of Florencia (Caquetá) for their support in the development of the research project Public Policy on Informality in Florencia, from which this article is derived.

CONFLICTS OF INTEREST

The authors declare no financial, professional, or personal conflicts of interest that could have inappropriately influenced the results or interpretations presented in this study.

AUTHOR CONTRIBUTIONS

All authors contributed significantly to the development of this article, including its design, conceptual framework, methodology, data analysis, and manuscript writing and revision.

REFERENCES

Acs, Z. J., & Amorós, J. E. (2008). Entrepreneurship and competitiveness dynamics in Latin America. *Small Business Economics, 31*, 305-322. https://doi.org/10.1007/s11187-008-9133-y

Almodóvar, M. (2018). Tipo de emprendimiento y fase de desarrollo como factores clave para el resultado de la actividad emprendedora. *Cuadernos de Relaciones Laborales, 36*(2), 225-244. https://doi.org/10.5209/CRLA.60695

Alvarado-Villanueva, Y., Ferrer-Tarazona, R. S., & Florida-Rofner, N. (2020). Evaluación ex post al proyecto productivo alternativo de Bella Bajo Monzón. *Revista Ciencia UNEMI, 13*(34), 47-58. https://dialnet.unirioja.es/servlet/articulo?codigo=8375360

Angulo Luna, A. A., Angulo Cuentas, G. L., & Valderrama Fernández, G. J. (2022). Evaluación ex post de los proyectos de innovación y emprendimiento en la Universidad del Magdalena. *Revista Escuela de Administración de Negocios,* (92). https://doi.org/10.21158/01208160.n92.2022.3545

Arias-Vargas, F. J., Ribes-Giner, G., & Garcés-Giraldo, L. F. (2022). Emprendimiento rural: una aproximación histórica. *Retos Revista de Ciencias de la Administración y Economía, 12*(23), 45-66. https://doi.org/10.17163/ret.n23.2022.03

Arshed, N., Carter, S., & Mason, C. (2014). The ineffectiveness of entrepreneurship policy: is policy formulation to blame? *Small Business Economics, 43*, 639-659. https://doi.org/10.1007/s11187-014-9554-8

Backes, D. S., Colomé, J. S., Mello, G. B., Gomes, R. C. C., Lomba M. L. L. F., & Ferreira, C. L. L. (2022). Social entrepreneurship in the professional training in Nursing. *Revista Brasileira de Enfermagem, 75*(3), art. e20220391. https://doi.org/10.1590/0034-7167-2021-0391

Bayona-Oré, S. (2022). Competencias para el Emprendimiento en el Contexto Covid-19. *Revista Ibérica de Sistemas e Tecnologias de Informação, RISTI, 4*(49), 528-536. https://hdl.handle.net/20.500.13067/2529

Benavides-Sánchez, E. P., Moya-Clemente, I., & Ribes-Giner, G. (2022). Emprendimiento Sostenible y Objetivos de Desarrollo Sostenible: un análisis bibliométrico. *TEC Empresarial, 16*(1), 101-122. https://www.scielo.sa.cr/scielo.php?script=sci_arttext&pid=S1659-33592022000100101

Blackburn, R. A., & Smallbone, D. (2008). Researching Small Firms and Entrepreneurship in the UK: Developments and Distinctiveness. *Entrepreneurship Theory and Practice, 32*(2), 267-288. https://doi.org/10.1111/j.1540-6520.2007.00226.x

Boscán Carroz, M. C., Meleán Romero, R. A., Chávez Vera, K. J., & Calanchez Urribarri, Á. (2023). Emprendimiento peruano en el marco del desarrollo sostenible. *Retos Revista de Ciencias de la Administración y Economía, 13*(26), 223-236. https://doi.org/10.17163/ret.n26.2023.03

Callejón Fornieles, M., & Castany Teixidor, L. (2008). Iniciativa emprendedora, innovación y competitividad. *Información Comercial Española: Revista de Economía, 1*(841), 7-28. https://www.revistasice.com/index.php/ICE/article/view/1125

Chávez Vera, K. J., & Calanchez Urribarri, Á. (2022). Pensamiento estratégico para impulsar el emprendimiento en el contexto de la pandemia. *Revista Venezolana de Gerencia, 27*(7), 572-588. https://doi.org/10.52080/rvgluz.27.7.38

Cho, Y., & Honorati, M. (2014). Entrepreneurship programs in developing countries: A meta regression analysis. *Labour Economics, 28*, 110-130. https://doi.org/10.1016/j.labeco.2014.03.011

Consejo Privado de Competitividad. (2023). *Índice Departamental de Competitividad 2025*. Universidad del Rosario, Centro de Estudios para la Competitividad Regional – Score. Puntoaparte Editores. https://compite.com.co/wp-content/uploads/IDC-2025_COMPLETO.pdf

Cooper, W. W., Seiford, L., & Zhu, J. (2011). Data Envelopment Analysis. History, Models and Interpretations. In W. Cooper, L. Seiford & J. Zhu (Eds.), *Handbook on Data Envelopment Analysis. International Series in Operations Research & Management Science, vol 164* (pp. 1-39). Springer. https://doi.org/10.1007/978-1-4419-6151-8_1

Copelli, F. H. S., Erdmann A. L., Santos, J. L. G., Backes, D. S., & Martini, J. G. (2022). Entrepreneurship and entrepreneurial education in the context of postgraduate nursing. *Revista Gaúcha de Enfermagem, 43*, art. e20200444. https://doi.org/10.1590/1983-1447.2022.20200444.en

Creswell, J. W., & Creswell, D. J. (2018). *Research Design. Qualitative, Quantitative, and Mixed Methods Approaches*. Sage.

Cruz Bolaños, J. A., & Cifuentes-Leiton, D. M. (2021). Emprendimiento y universidad: reflexión sobre la reproducción discursiva del Estado moderno y de la academia como estrategia. In J. Londoño-Cardozo, M. A. Salcedo-Serna & D. M. Cifuentes-Leiton (Eds.), *Emprendimiento y Universidad: Giros y desafíos de una relación problemática* (pp. 127-160). Editorial Universidad Santiago de Cali. https://libros.usc.edu.co/index.php/usc/es/catalog/download/344/477/6872?inline=1

Dávila-Morán, R. C. (2022). Emprendimiento y gerencia en tiempos de pandemia: una revisión sistemática. *AiBi Revista de Investigación, Administración e Ingeniería, 10*(3), 98-108. https://doi.org/10.15649/2346030X.2945

De Clercq, D., Danis, W. M., & Dakhli, M. (2010). The moderating effect of institutional context on the relationship between associational activity and new business activity in emerging economies. *International Business Review, 19*(1), 85-101. https://doi.org/10.1016/j.ibusrev.2009.09.002

Diaz, D. N., Romero Valbuena, H. L., & Fajardo Ortiz, E. J. (2021). Cultura y emprendimiento en Colombia: un estudio correlacional para el 2017. *Cuadernos Latinoamericanos de Administración, 17*(33), 1-16. https://doi.org/10.18270/cuaderlam.v17i33.3688

Didier, T., & Cusolito, A. P. (2024). *Unleashing Productivity through Firm Financing*. World Bank. https://doi.org/10.1596/42194

Escobar, A. (1998). *La invención del Tercer Mundo: construcción y deconstrucción del desarrollo*. Editorial Norma.

Escobar, A. (2014). *La invención del desarrollo* (3rd ed.). Editorial Universidad del Cauca.

Fanjul, A. P., Herrera, L., & Munoz-Doyague, M. F. (2023). Fostering rural entrepreneurship: An ex-post analysis for Spanish municipalities. *Technological Forecasting and Social Change, 197*, art. 122915. https://doi.org/10.1016/j.techfore.2023.122915

Finke, J., Osorio-Tinoco, F., & Pereira Laverde, F. (2021). Empoderamiento femenino, emprendimiento y pobreza. El caso colombiano. *Cuadernos De Administración, 34*, 1-18. https://doi.org/10.11144/Javeriana.cao34.efepcc

Gallardo-Vásquez, D., & Sánchez-Hernández, M. I. (2014). Panorámica de los servicios del Gobierno de Extremadura para la creación de empresas. In *Estratégias, infraestruturas e redes empreendedoras para o desenvolvimento regional 21.° Workshop APDR* (pp. 17-28). Atas Proceedings.

Hernández Sampieri, R., Fernández Collado, C., & Baptista Lucio, M. P. (2014). *Metodología de la investigación* (6th ed.). Mc Graw Hill.

Ibrahim, M. G. (2026). Entrepreneurship policy evaluation and decision analysis for job creation: a study of npower programme. *International Journal of Financial Research and Business Development, 11*(7). https://doi.org/10.70382/mejfrbd.v11i7.083

Imbruno, M., & Grover, A. (2020). *Using Experimental Evidence to Inform Firm Support Programs in Developing Countries. Policy Research Working Paper, 9461*. World Bank. https://doi.org/10.1596/1813-9450-9461

Jurado Paz, I. M. (2022). Emprendimiento rural como estrategia de desarrollo territorial: una revisión documental. *Económicas CUC, 43*(1), 257-280. https://doi.org/10.17981/econcuc.43.1.2022.Org.7

Lloret, P. (2020). Claves de éxito y fracaso de una startup. *Revista de Contabilidad y Dirección, 30*, 23-34. https://accid.org/wp-content/uploads/2021/08/RCD30_Startups_cast-Claves-de-exito-y-fracaso-de-una-startup.pdf

López-Rodríguez, C. E., Cristancho-Triana, G. J., & Cabrera-Jiménez, M. F. (2021). Los procesos de emprendimiento en Colombia y su incidencia en los sectores Productivos. *Ciencias Económicas, 2*(17), 37-55. https://doi.org/10.14409/rce.v2i0.10484

Márquez Ortiz, L. E., Cuétara Sánchez, L. M., Cartay Angulo, R. C., & Labarca Ferrer, N. J. (2020). Desarrollo y crecimiento económico: Análisis teórico desde un enfoque cuantitativo. *Revista de Ciencias Sociales, 26*(1), 233-253. https://www.redalyc.org/journal/280/28063104020/

Mayer Granados, E. L., Blanco Jiménez, F. J., Alonso Neira, M. Á., & Charles Coll, J. A. (2020). Emprendimiento y crecimiento económico: El sistema mexicano de incubadoras de negocios. *Revista de Ciencias Sociales, 26*(1), 107-127. https://doi.org/10.31876/rcs.v26i1.31314

Mendes, T., Braga, V., Silva, C., & Ratten, V. (2023) Taking a closer look at the regionally clustered firms: How can ambidexterity explain the link between management, entrepreneurship, and innovation in a post-industrialized world? *The Journal of Technology Transfer, 48*, 2007-2053. https://doi.org/10.1007/s10961-022-09991-5

Meyer, K. E., Estrin, S., Bhaumik, S. K., & Peng, M. W. (2009). Institution, Resources and Entry Strategies in Emerging Economies. *Strategic Management Journal, 30*(1), 61-80. http://www.jstor.org/stable/40060247

Morris, M. H. (2020). The Liability of Poorness: Why the Playing Field is Not Level for Poverty Entrepreneurs. *Economic Policy, 12*(3), 304-315. https://doi.org/10.1002/pop4.283

Morris, M. H., Kuratko, D. F., Audretsch, D. B., & Santos, S. (2022). Overcoming the liability of poorness: disadvantage, fragility, and the poverty entrepreneur. *Small Business Economics, 58*, 41-55. https://doi.org/10.1007/s11187-020-00409-w

Morris, M. H., Kuratko, D. F., Santos, S. C., & Soleimanof, S. (2024). Fear and the poverty entrepreneur: The paradox of failure and success. *Business Horizons, 67*(1), 41-54. https://doi.org/10.1016/j.bushor.2023.07.002

Morris, M. H., Santos, S. C., & Neumeyer, X. (2020). Entrepreneurship as a solution to poverty in developed economies. *Business Horizons, 63*(3), 377-390. https://doi.org/10.1016/j.bushor.2020.01.010

Morris, M. H., & Tucker, R. (2021). Poverty and Entrepreneurship in Developed Economies: Re-Assessing the Roles of Policy and Community Action. *Journal of Poverty, 25*(2), 97-118. https://doi.org/10.1080/10875549.2020.1747587

Muñoz, P. (2020). Capítulo IV. La gestión pública: de los modelos al territorio. In F. Sánchez & N. Liendo (Eds.), *Manual de ciencia política y relaciones internacionales* (pp. 95-124). Universidad Sergio Arboleda. http://hdl.handle.net/11232/1457

Panduro Saboya, J. (2022). *Evaluación ex post y competitividad en acuicultores beneficiarios del proyecto de inversión pública No. 2109727, Región San Martín, 2022* [tesis de maestría, Universidad Cesar Vallejo]. Repositorio UCV. https://repositorio.ucv.edu.pe/handle/20.500.12692/95010

Ratten, V. (2023). Entrepreneurship: Definitions, opportunities, challenges, and future directions. *Global Business and Organizational Excellence, 42*(5), 79-90 https://doi.org/10.1002/joe.22217

Reynolds, P. D., Bygrave, W. D., Autio, E., Cox, L. W., & Hay, M. (2002). *Global entrepreneurship monitor. 2002 Executive Report.* Kauffman Foundation.

Rodríguez Lozano, G. I., & Tarazona Morales, O. (2015). Unidades de emprendimiento bajo un estudio de eficiencia relativa. *Revista de la Facultad de Ciencias Económicas de la Universidad Militar Nueva Granada, 13*(2), 149-162. http://doi.org/10.18359/rfce.1613

Santos, S. C., Costa, S., & Morris, M. H. (2022) Entrepreneurship as a pathway into and out of poverty: a configuration perspective. *Entrepreneurship & Regional Development, 34*(1,2), 82-109. https://doi.org/10.1080/08985626.2022.2030413

Senra, L. F. A. de C., Nanci, L. C., Soares de Mello, J. C. C. B., & Ângulo Meza, L. (2007). Estudo sobre métodos de seleção de variáveis en DEA. *Pesquisa Operacional, 27*(2), 191-207. https://doi.org/10.1590/S0101-74382007000200001

Simón de Blas, C., Arias Coello, A., & Simón Martín, J. (2007). Aplicación de la técnica DEA en la medición de la eficiencia de las bibliotecas de la Universidad Complutense de Madrid. *Revista Española de Documentación Científica, 30*(1), 9-23. https://doi.org/10.3989/redc.2007.v30.i1.366

Stam, E., Suddie, K., Hessels, S. J., & van Stel, A. (2006). Los emprendedores con potencial de crecimiento y el desarrollo económico: políticas públicas de apoyo a los emprendedores. *Ekonomiaz: Revista Vasca de Economía, 62*(2), 124-149. https://doi.org/10.69810/ekz.0804

Torre, A. (2015). Théorie du développement territorial. *Géographie, économie, société, 17*(3), 273-288. https://shs.cairn.info/article/GES_173_0273

Valliere, D., & Peterson, R. (2009). Entrepreneurship and economic growth: Evidence from emerging and developed countries. *Entrepreneurship & Regional Development, 21*(5-6), 459-480. https://doi.org/10.1080/08985620802332723