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An expert assessment of the strengths and weaknesses of a sustainable entrepreneurial ecosystem in Latin America

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ABSTRACT

The sustainable entrepreneurship ecosystem is a topic of great relevance today due to the problems caused by industrial production and mass consumption. Despite the research that has been carried out, there are still areas to be explored regarding the differences in qualities between sustainable and non-sustainable entrepreneurial ecosystems in Latin America. In order to gain a more profound understanding of the issue, this study analysed the responses of 92 experts in entrepreneurship to a self-administered online survey, with the purpose of recognizing differentiating characteristics of the sustainable entrepreneurship ecosystem in this region. The survey assessed several dimensions of the entrepreneurship ecosystem that are widely accepted in the literature. A comparison of the frequency distributions of the responses was conducted using descriptive analysis and the non-parametric Wilcoxon Mann-Whitney U and median comparison tests. The results indicated that perceptions regarding access to financing, public policies for entrepreneurship and education are more favourable for sustainable ventures. Conversely, perceptions regarding access to professional services, regulations that facilitate market entry, the availability of physical infrastructure, and a national culture that encourages entrepreneurship were perceived less favourably for the creation of sustainable business. The results provide novel characteristics of the sustainable ecosystem in the region, which can inform the creation of targeted public policies and governmental regulations. These policies and regulations have the capacity to facilitate the development of enterprises that are oriented towards enhancing societal welfare and safeguarding environmental resources.

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1. Introduction

Entrepreneurial ecosystem consists of various actors, including entrepreneurs, firms, governments, and support organizations, which interact in a network to support venture creation and growth. These actors engage in horizontal relationship building, emphasizing collective action to achieve common goals (Cavallo et al., 2023; Hrušková, 2024). The effective orchestration and governance of these interactions are crucial for achieving ecosystem-level outcomes and addressing technological and social challenges (Ferreira et al., 2023; Santos et al., 2023). A well-developed Entrepreneurial ecosystem can stimulate economic growth, create jobs, and enhance community resilience (Bergman, 2025).

The Global Entrepreneurship Monitor (GEM) model emphasizes the significance of the entrepreneurship ecosystem by highlighting how it influences entrepreneurial motives and impacts at the macro level (Hechavarría & Ingram, 2014). According to GEM, a supportive ecosystem characterized by low barriers to entry, favourable government policies, minimal commercial and legal infrastructure, and a culture that values entrepreneurship enhances women's engagement in venturing (Hechavarría & Ingram, 2019). The Global University Entrepreneurial Spirit Students' Survey (GUESSS) also highlights that entrepreneur ecosystem is crucial for fostering innovative startups and encouraging nascent entrepreneurs. In this line,

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Janeska – Iliev et al. (2020) argued the significant influence of university ecosystems on students' entrepreneurial behaviors, emphasizing that universities must align their entrepreneurial programs with the learning needs of students to effectively foster entrepreneurial intentions.

The sustainable entrepreneurship ecosystem refers to a network of interconnected entities and resources that facilitate the adoption and growth of sustainable business practices. It encompasses multiple perspectives, including economic, environmental, social, technological and ethical dimensions that are critical for decision makers (Bakry et al., 2025; Huang et al., 2023). The distinction between sustainable and non-sustainable entrepreneurial ecosystems revolves primarily around the integration of economic, social and environmental dimensions, as well as the strategic dynamics and specific interactions within these ecosystems (Huang et al., 2023). This suggests that sustainable ecosystems are oriented towards long-term societal benefits and are aligned with the sustainable development goals (SDGs) defined by the United Nations, since sustainable ecosystems are conducive to the promotion of inclusive and sustainable economic growth, the establishment of sustainable consumption and production patterns, the elimination of poverty in all its forms worldwide, the achievement of full and productive employment and decent work for all, and the reduction of inequality within and between countries.

Nowadays, sustainable entrepreneurship ecosystem in Latin America is crucial due to their impact on social welfare and environmental protection (Amorós et al., 2024). Despite recent studies that have identified positive and negative attributes of sustainable entrepreneurial ecosystems in Latin America (Rojo-Suárez et al., 2024; Segovia-Hernández et al., 2022; Sherman et al., 2017; Theodoraki, 2024), there are still gaps to be explored regarding specific differences between sustainable and non-sustainable entrepreneurial ecosystem in this region. The success of sustainable enterprises is contingent on the existence of a favourable external environment that encourages the dissemination of knowledge and technological advancement across a region (Awan et al., 2021; Chaudhary et al., 2023). Therefore, it is imperative to improve our understanding of the characteristics that define this sustainable ecosystem, as such knowledge is essential for the protection of the environment and social communities in this region. In this scenario, the following research questions are relevant: What differences between sustainable and non-sustainable entrepreneurial ecosystem are perceived by experts in Latin America?

The aim of this study is to provide new insights into this issue by conducting a direct comparison of sustainable and non-sustainable ecosystems in this region. In a unique way, this study has sought to differentiate the ecosystem of sustainable and non-sustainable entrepreneurship in Latin America, analysing their differences in terms of the challenges and opportunities they create for entrepreneurs seeking to develop businesses focused on the well-being of communities and care for the environment. The aim is to identify characteristics of the sustainable ecosystem in the region that can be further explored in future studies. Taking into account the results of this research, future studies could develop measurement tools for a more precise diagnosis or propose a configuration of the sustainable entrepreneurship ecosystem that takes into account its specificities.

In particular, this evaluation has been conducted with a focus on elucidating the strengths and weaknesses of each ecosystem. 92 responses to a self-administered online survey of experts, who reported work experience in entrepreneurship issues in Latin America, were obtained. The survey assessed dimensions of the entrepreneurship ecosystem that are widely accepted in the literature (Espinoza-Benavides et al., 2021; Hart et al., 2020; Sitaridis & Kitsios, 2020). It incorporated a comparative measurement scale with the purpose of directly contrasting sustainable and non-sustainable entrepreneurship ecosystem conditions. A comparison of the frequency distributions of responses regarding the valuation of entrepreneurial ecosystem dimensions was conducted using descriptive analysis, non-parametric Wilcoxon Mann-Whitney U and non-parametric median comparison tests.

From a theoretical perspective, a more profound comprehension of the strengths and weaknesses of the sustainable entrepreneurship ecosystem, in comparison to the non-sustainable ecosystem, serves to complement the approaches of theoretical frameworks that seek to explain the effects of context on the development of ventures. This includes models such as the GEM model or GUESSS, which consider the impact of contextual actors and factors on the creation and maintenance of businesses. From a practical approach, the results of this study can guide public policy, government programmes, and leaders of higher education institutions in the training of professionals who contribute to sustainable development. A more profound understanding of the strengths and weaknesses of the sustainable entrepreneurship

ecosystem can address the establishment of regulations and incentives to enhance human and technological resources that promote a favourable context for ventures that protect communities and environmental resources.

2. Theoretical framework

2.1. Sustainable and non-sustainable entrepreneurship

Sustainable entrepreneurship integrates triple-bottom-line principles, focusing on long-term positive impacts on people, planet, and profit. In contrast, traditional entrepreneurship typically prioritizes profit maximization without considering broader social and environmental implications (Avelar et al., 2024; Bonfanti et al., 2024). Sustainable entrepreneurship focuses on long-term environmental and social impacts, integrating individual and cultural perspectives to promote sustainable intentions. In contrast, traditional entrepreneurship may prioritize short-term gains over sustainability (Javed et al., 2024). The key difference lies in the approach towards societal and environmental issues, with sustainable entrepreneurship emphasizing responsible and ethical practices for a more sustainable future (Dijkstra & Planko, 2023).

Sustainable entrepreneurship is crucial in Latin America due to the region's slow progress in green economies and Corporate Social Responsibility (CSR). This is important for this region because it helps the economy to grow while also dealing with environmental and social problems (Romero-Colmenares & Reyes-Rodríguez, 2022). CSR is crucial not only for communities and the environment but also for the long-term development and survival of humans (Sánchez & Aguilar, 2020). Contrarily, unsustainable entrepreneurship contributes to environmental degradation and negatively impacts communities by increasing pollution levels, depleting natural resources, and fostering socio-economic instability (Ashton et al., 2017). This can lead to increased vulnerability to environmental and economic crises, impacting both the environment and the well-being of the communities (Seghezze et al., 2020).

2.2. General entrepreneurial ecosystem

In its most abstract sense, an ecosystem is a biotic community, encompassing its physical environment, and all the interactions possible in the complex of living and non-living components. Economics has always been about systems that explain differential output and outcomes. However, economics has generally ignored the role of entrepreneurship in economic systems, just as entrepreneurship studies have largely overlooked the role of systems in explaining the prevalence and performance of entrepreneurship (Acs et al., 2017). An entrepreneurial ecosystem is a complex network of interconnected actors and factors that collectively foster entrepreneurial activity and innovation within a specific region. This network includes venture capitalists, corporations, universities, research entities, government bodies, research and development (R&D) centers, and specialized service providers, all working together to support high-potential entrepreneurs (Santos et al., 2023). The importance of entrepreneurial ecosystems lies in their ability to create an environment conducive to productive entrepreneurship, which is essential for regional economic development and innovation (Chaudhary et al., 2024).

Their orchestration involves managing the ecosystem's institutions, dynamicity, and strategic direction through specific activities that enhance ecosystem-level outcomes. This collaborative effort is pivotal in generating value and can provide valuable guidance to policymakers as they formulate incentives and best practices for ecosystem development (Santos et al., 2023). Understanding the sources of heterogeneity of entrepreneurial ecosystem configurations and their respective co-evolutionary nature can provide key insights towards a theory of entrepreneurial ecosystem that accommodates distinct manifestations of this phenomenon (Fischer et al., 2024). In this line, Stam's (2015) study provided a causal scheme demonstrating how the ecosystem's framework and systemic conditions give rise to specific entrepreneurial activities as ecosystem output and new value creation as ecosystem outcome.

Entrepreneurial ecosystems are governed through collective action, which enables actors to achieve common goals beyond their individual capabilities. This collective action is facilitated by 'ecosystem pipelines,' which are pathways that allow entrepreneurs to access necessary support and resources (Hrušková, 2024).

The interaction between entrepreneurial actors, institutions, and cultures within an entrepreneurial ecosystem is also pivotal for fostering innovation, which is a key outcome of a well-functioning ecosystem (Chaudhary et al., 2024). Research suggests that the synergy between academia, government, and entrepreneurs plays a significant role in nurturing these ecosystems, with government support through subsidies and incentives being particularly beneficial (Kumar et al., 2024).

The mapping of an entrepreneurial ecosystem is a valuable exercise that facilitates the identification of its fundamental elements and interactions. This process not only aids in resource allocation but also serves as a tool for community development by highlighting areas for improvement and potential growth (Bergman, 2025). This perspective emphasizes the importance of understanding entrepreneurial ecosystems through the elements of people, place, purpose, and process, providing insights for policy and economic development interventions (Daniel et al., 2022). Stam & van de Ven (2021) developed a measurement instrument to evaluate its elements and used this to compose an entrepreneurial ecosystem index. This index is used to examine the quality of entrepreneurial ecosystems and understand their characteristics.

The role and importance of the actors and factors of the entrepreneurial ecosystem has been argued in previous studies. In this regard, Universities act as key intermediaries, facilitating the commercialisation of research and connecting research initiatives with entrepreneurial funding providers. They play a pivotal role in regional and global contexts by linking scientific research with industry needs, thereby promoting innovation and long-term investment (Owen et al., 2024). Furthermore, Universities work in partnership with learners, educators, government bodies, industry representatives and the community to promote entrepreneurship through curriculum development, entrepreneurial activities and the provision of resources (Crespo, 2019). Research entities and R&D centers contribute by advancing knowledge and technology, which are critical for innovation ecosystems. They work closely with universities and industry to translate research into commercial applications (Santos et al., 2023).

Venture capitalists and financial intermediaries are also vital for providing the necessary funding and financial support to startups and emerging businesses, enabling them to scale and innovate (Santos et al., 2023). These actors are part of the financial infrastructure that supports the ecosystem's growth and sustainability (Owen et al., 2024). Government entities are instrumental in shaping policy frameworks that support ecosystem actors, providing public funds and creating conducive environments for innovation and entrepreneurship (Owen et al., 2024). Government entities also play a role in orchestrating the ecosystem by managing institutions and strategic directions, ensuring dynamic interactions among actors (Santos et al., 2023). Furthermore, industry and private corporations contribute by offering practical insights, resources, and market access, which are essential for the growth and scaling of entrepreneurial ventures. They collaborate with universities and other actors to drive technological advancements and address social challenges (Ferreira et al., 2023).

In Latin America, the entrepreneurship ecosystem has some outstanding qualities. One of the primary strengths is its high rate of entrepreneurial activity, which is crucial for economic development. Entrepreneurs in this region contribute to job creation, innovation, and the attraction of resources and investments (Martínez & Bañón, 2023). Additionally, the region's emerging economies offer unique opportunities for international social entrepreneurship, driven by institutional voids that create both challenges and opportunities. These voids can lead to innovative solutions to social problems that are not addressed by governments or NGOs, thus fostering a dynamic entrepreneurial environment (Chen et al., 2016).

The ecosystem in Latin America also faces significant weaknesses. Entrepreneurs encounter numerous obstacles, including bureaucratic hurdles, complex tax procedures, and limited access to financing. The financial system in the region has been underdeveloped, making it difficult for entrepreneurs to secure necessary funding (Feinberg, 2014). Recent years have seen the establishment of government-backed and private initiatives in countries such as Brazil, Mexico, Chile, Colombia and Argentina, to provide financial assistance in the form of loans and subsidies. Concurrently, initiatives are being pursued in countries such as Peru, Costa Rica, and Uruguay with the objective of improving access to financial resources and fostering entrepreneurial ventures (Feijó-Cuenca et al., 2023). In Colombia, legislative reforms designed to fortify the rights of secured creditors and to create a national collateral registry have facilitated enhanced access to debt financing (Guevara & Riutort, 2024). However, obstacles persist, particularly for new enterprises or those with higher risk profiles.

2.3. Sustainable entrepreneurship ecosystem

Sustainable entrepreneurial ecosystems differ from non-sustainable ones by fostering interactions among various actors like customers, suppliers, institutions, governments, and universities to create a sustainable environment. In sustainable ecosystems, entrepreneurs play an expanded role in generating ecological and social value, contributing to SDGs (Chaudhary et al., 2023). Firstly, the ecosystem theory of sustainable entrepreneurship emphasizes the importance of antecedent conditions such as high-quality education, responsible consumption and production, and economic factors like gross domestic product (GDP) in achieving sustainable entrepreneurship.

The distinction between sustainable and non-sustainable entrepreneurial ecosystems primarily revolves around the integration of economic, social, and environmental dimensions, as well as their strategic dynamics and interactions. Sustainable ecosystems leverage high-quality education, responsible consumption and production, and economic growth. Huang et al. (2023) highlighted that sustainable entrepreneurship is achieved through specific configurations that integrate these elements, although the direct role of environmental quality is not as evident as other factors like education and GDP. Theodoraki (2024) emphasised the importance of understanding the interdependencies within business ecosystems, which are often overlooked in traditional approaches that do not consider sustainability, because unsustainable business ecosystems may lack this holistic integration, focusing primarily on economic growth without adequately addressing social and environmental impacts.

In underserved communities, the ecosystem approach is particularly vital. It involves networks and collaborations among various actors, including government, regulators, policymakers, supporting institutions, small businesses, and entrepreneurs. This inclusive approach is essential for fostering sustainable entrepreneurship in marginalized areas, highlighting the need for tailored strategies that consider the unique challenges and opportunities in these communities (Ismail et al., 2022). Consequently, various studies have analysed specific characteristics of sustainable ecosystems. Bertello et al. (2022) investigated the interactions of knowledge-intensive sustainable ventures with entrepreneurial ecosystem actors for survival, growth, and contributions to economic and sustainable development. Bischoff (2021) highlighted the significance of entrepreneurial stakeholders and regional culture in shaping perceptions of sustainable entrepreneurial ecosystems. Pankov et al. (2021a) identified three micro-level practices essential for sustainable entrepreneurs: fostering supportive environments, challenging normative standards, and redefining the sustainability paradigm. Additionally, certain studies have focused on the sustainable entrepreneurial ecosystems linked to specific geographic areas and natural resources (O'Connor & Audretsch, 2023).

In Latin America, the conditions for sustainable entrepreneurship presents some advantages. This region is rich in natural resources, which positions its chemical and petrochemical industries for significant growth. This potential is bolstered by a growing interest in increasing energy efficiency and reducing waste, which are crucial for sustainable development (Segovia-Hernández et al., 2022). Mission-oriented policies have been instrumental in promoting sustainable regional development and innovation. These policies are crucial for improving national innovation systems, which are essential for sustainable development (Zapata-Cantu & González, 2021). Furthermore, the development of support frameworks such as the Building Entrepreneurial Ecosystems Sustainably (BEES) programme enhances the creation processes of sustainable ventures by providing a holistic understanding of entrepreneurial ecosystems (Theodoraki, 2024).

Similarly, some studies have argues disadvantages of sustainable entrepreneurial ecosystem in this region. High levels of social inequality and poverty remain significant challenges. These socio-economic issues hinder the ability to achieve sustainable development, as they exacerbate the difficulties in balancing economic growth with environmental preservation (Zapata-Cantu & González, 2021). The region's current economic and regulatory environment presents challenges for initiatives promoting sustainable energy development. The oil and gas sector, whilst adopting environmental, social and governance (ESG) practices, faces challenges such as lower future dividend growth despite reduced discount rates, because they do not fully mitigate the financial challenges associated with the green transition (Rojo-Suárez et al., 2024). Latin America is also facing logistical and political challenges that make it difficult to implement sustainable practices. These barriers can impede the growth and consolidation of

industries, affecting the overall sustainability of the entrepreneurial ecosystem (Segovia-Hernández et al., 2022).

The distinctive characteristics of the sustainable entrepreneurship ecosystem in Latin America suggest that it differs from non-sustainable ecosystems. In particular, the sustainable ecosystem could present dimensions that are more positively perceived by experts in entrepreneurship, and represent strengths, when they compared it with a non-sustainable ecosystem. Conversely, other dimensions that are less positively perceived and represent weaknesses could be displayed. Therefore, the following hypotheses are put forward:

- Hypothesis 1: The sustainable entrepreneurship ecosystem of Latin America is perceived differently by experts in terms of its strengths when compared with a non-sustainable ecosystem.
- Hypothesis 2: The sustainable entrepreneurship ecosystem of Latin America is perceived differently by experts in terms of its weaknesses when compared with a non-sustainable ecosystem.

3. Methodology

3.1. Measurement

An online self-administered survey was distributed via the Survey Monkey platform, by sending emails from this platform requesting expert responses. The invitation email included the link to access the survey to answer it on the Survey Monkey platform. The collection of responses from experts from different Latin American countries was supported by the Latin American Council of Management School (CLADEA), since, through the coordination of the entrepreneurship research area of this organisation, access to the survey was distributed via email to experts in entrepreneurship in the region. The period for collecting responses to the online survey was from 01 October 2022 to 30 April 2023. The research project was approved by the Ethics Committee of the Universidad de las Américas (ID:1312022). The survey included a written request for informed consent in accordance with the ethics committee format. The written consent form included details on the purpose of the research, the voluntary nature of participation, the anonymity of participation, and the data protection criteria. Only experts who accepted the conditions of the informed consent subsequently agreed to the survey questions.

The questionnaire included the following initial question as a filter to verify the respondents' experience in the field of entrepreneurship: "Please indicate your current job (occupation)." Only those experts who indicated that, at the time of answering the questionnaire, they were working in research, teaching, project coordination or project management of entrepreneurship projects in public or private organisations completed the questionnaire. Respondents who indicated that they were not working in the field of entrepreneurship and therefore were not involved in specific functions such as project leading, research or teaching related to entrepreneurship, did not continue to answer the survey items.

The questionnaire also included the following definition of sustainable entrepreneurship according to the approaches of different authors (Avelar et al., 2024; Dijkstra & Planko, 2023; Javed et al., 2024): "Sustainable entrepreneurship is the creation of businesses based on innovative environmental products and services with the potential for substantial market success, which contribute to positive social change". The questionnaire then asked: "Please compare how favourable or unfavourable the following aspects are for the development of sustainable enterprises in the country where you currently work."

The entrepreneurial ecosystem was assessed in the questionnaire using the ecosystem dimensions and factors identified in the Global Entrepreneurship Monitor (GEM) by Hart et al. (2020). The entrepreneurship ecosystem measurement of the GEM model has been widely used in previous decades (Amorós et al., 2013; Hechavarría & Ingram, 2019; McGehee & Kline, 2008) and in recent studies (Espinoza-Benavides et al., 2021; Sitaridis & Kitsios, 2020). It is also similar to other measures of the entrepreneurial ecosystem, such as the one proposed by Liguori et al. (2019). Spigel (2017) argued that ecosystems are composed of 10 cultural, social and material attributes that provide benefits and resources to entrepreneurs and that the relationships between these attributes reproduce the ecosystem. Cao and Shi (2021) proposed a conceptual model that explains the dynamics of the entrepreneurial ecosystem based on resource,

interaction and governance logics, respectively. The GEM model describes the entrepreneurial ecosystem through nine dimensions: financial support, government policies, government programs, education and training, research and development transfer, access to commercial and professional infrastructure, openness of the internal market, access to physical infrastructure, and social and cultural norms (Global Entrepreneurship Monitor, 2025; Martínez-Fierro et al., 2015). These dimensions have been considered in recent studies that have assessed the conditions of the entrepreneurial ecosystem in different geographical areas (Aliabadi et al., 2019; Inácio et al., 2024; Koseoglu & Arici, 2025; Popescu et al., 2024).

The survey incorporated a comparative scale with the purpose of directly contrasting sustainable and non-sustainable entrepreneurship ecosystem conditions, including the following options: 1=Much more favourable to the development of sustainable ventures, 2=Rather favourable for the development of sustainable ventures, 3=Slightly more favourable for the development of sustainable ventures, 4=Same for sustainable and non-sustainable ventures, 5=Slightly more favourable for the development of non-sustainable ventures, 6=Rather more favourable for the development of non-sustainable ventures, 7=Much more favourable for the development of non-sustainable ventures. Direct comparison scales in surveys facilitate relative measurements comparisons, allowing respondents to evaluate options against each other, which can lead to more nuanced insights (Saaty, 2008).

3.2. Sample

A total of 92 entrepreneurship experts from Latin America responded to the online self-administered survey, who reported working in private or public organisations with functions related to entrepreneurship. Experts are people who know about a particular subject, and they can do better than other people and process information more accurately (Mitchell et al., 2000). In the context of research on entrepreneurial ecosystems, expert opinion has been identified as a significant source of knowledge and has been incorporated into recent studies (Karimi & Ataei, 2022; Khokhawala & Iyer, 2024). Responses were obtained through convenience sampling due to access and resource constraints to apply random sampling (Zhao, 2021). Despite the limitations of convenience sampling, the characteristics of the sample of this study are considered coherent as it shows diversity in age, country of origin of participants and years of experience of the experts, as well as similar gender proportions.

While research has shown that larger sample sizes can improve the generalisability of empirical findings, it has been asserted that a smaller sample can be adequate when the participants have a specific expertise in the respective subject matter, because these individuals contribute a substantial degree of specialised knowledge (Letnik et al., 2023). It is further posited that their perspectives are likely to be especially insightful and nuanced, thus augmenting the pertinence of the findings. In this line, Manyara et al. (2024) recommended a minimum sample size of 60 to 80 participants in multistakeholder Delphi surveys. In accordance, recent research has been conducted by assessing experts in industries, business disciplines and entrepreneurship, using samples of less than 100 people (Hardie et al., 2022; Nguyen et al., 2022; Sarvari et al., 2024).

The surveys responses that were selected for analysis in this research were those that were fully completed and included approval of the informed consent form. It is noteworthy that 42.39% of the sample reported having a PhD, 55.43% had more than three years of experience in entrepreneurship related work, and that the gender distribution is similar in the sample. In terms of occupation, experts reported being involved in teaching (45.65%) or research (40.22%) in the field of entrepreneurship, or in the management of entrepreneurship projects in public and private organisations (14.13%). As previously stated, the characteristics of the study sample are considered coherent due to the incorporation of diversity with respect to age, country of origin, years of experience, entrepreneurial roles and educational levels, as well as similar gender proportions. Table 1 describes the characteristics of the expert sample.

3.3. Statistical analysis

Firstly, the analysis of the responses was carried out using descriptive statistics, as this research seeks to identify the strengths and weaknesses of the sustainable entrepreneurship ecosystem compared to the non-sustainable ecosystem. To complete this task, it is necessary to describe the frequency distribution

Table 1. Demographic description of sample.

Country	Women	Men	<50 years	>49 years	Graduate	Master	PhD	Years of work experience in entrepreneurship			Total
								1–3	4–6	7 o more	
Bolivia	2	5	3	4	0	5	2	2	4	1	7
Brazil	0	1	0	1	0	0	1	0	1	0	1
Chile	5	11	11	5	1	10	5	5	11	0	16
Colombia	13	9	11	11	1	16	5	11	9	2	22
Costa Rica	2	0	0	2	0	1	1	1	0	1	2
Ecuador	9	14	14	9	1	14	8	15	6	2	23
México	3	6	6	3	0	2	7	5	3	1	9
Nicaragua	1	0	1	0	0	1	0	0	1	0	1
Panamá	1	0	0	1	0	0	1	1	0	0	1
Perú	0	4	0	4	0	0	3	0	3	1	4
Puerto Rico	5	0	0	5	0	1	5	1	2	2	5
Venezuela	1	0	0	1	0	0	1	0	0	1	1
Total	42	50	46	46	3	50	39	41	40	11	92

and analyse the central tendency and dispersion of the scale of comparison used. Descriptive statistical analysis offers several advantages, including the ability to provide a clear and concise summary of data, which helps in understanding complex phenomena (Klasik & Zahran, 2022). Recent studies analysing expert opinions have used descriptive statistical analysis (García-Álvarez et al., 2024; Szromek et al., 2023).

Due to sample size restrictions and non-compliance with data normality requirements, the analysis was based on non-parametric tests. Verification of normality was conducted using the Shapiro-Wilk and Kolmogorov-Smirnov tests, which reported p-values of less than 0.05. This indicates that the null hypothesis of normality of the distribution was rejected with 95% confidence. Non-parametric approach should be used to compare central tendency when data does not meet the assumptions required for parametric tests. Their advantages include robustness against violations of distributional assumptions, applicability to non-normally distributed data, and the ability to handle ordinal scales (Feltovich, 2003; Krzywinski & Altman, 2014). Differences in the frequency distribution of responses were evaluated using the Wilcoxon-Mann-Whitney test. This is a non-parametric statistical test that has several features and advantages. One of its main strengths is its robustness, particularly in dealing with outliers and non-Gaussian data distributions, making it a strong competitor to the test in univariate settings and outperforming Hotelling's test in finite-dimensional multivariate non-Gaussian data scenarios (Chakraborty & Chaudhuri, 2015).

Furthermore, a non-parametric statistical method derived from the binomial distribution has been employed to facilitate the comparison of medians (Ma & Soriano, 2018). This technique is particularly advantageous for the comparative evaluation of medians, as it obviates the necessity for assumptions regarding the underlying distribution of the data. The test statistic for the sign test is defined as the count $n+$ of differences $d_j = x_{1j} - x_{2j} = \text{varname} - \text{exp}$ that exceed zero. In the one-tailed test, the alternative hypothesis proposed that the difference between the median of variable 1 minus variable 2 is either less than or greater than zero. In the two-sided test, the alternative hypothesis proposed that the differences in the medians are not equal to zero. If the p-value is less than 0.01, 0.05 or 0.10, the null hypothesis is rejected and the alternative hypothesis accepted, with 99, 95 or 90% confidence, respectively.

4. Results

Table 2 presents the descriptive analysis of the comparison between the sustainable and non-sustainable entrepreneurship ecosystems. Percentage %NS indicates the proportion of responses in favour of the non-sustainable ecosystem in relation to the total number of responses. Similarly, percentage %S denotes the percentage of responses in favour of the sustainable ecosystem out of the total number of responses. The difference between these two percentages is represented by %Diff.

The results showed that the ecosystem domains least favourable to sustainable entrepreneurship and most favourable to unsustainable entrepreneurship, considering the lowest values of the parameter %Diff, are “8- Access to professional services such as lawyers and accountants” (–7.61%), “10- Regulations

Table 2. Descriptive analysis.

	Sustainable			N	No sustainable			%NS	%S	%Diff ¹	Mean	Median	p25	p75
	1	2	3	4	5	6	7							
1. The funds available for new ventures, from informal investments and bank loans to government grants and venture capital, are:	13	13	22	16	8	12	8	30.43%	52.17%	21.74%	3.66	3.00	2.00	5.00
2. Government policies to promote entrepreneurship and support those starting new businesses are:	12	14	21	18	12	9	6	29.35%	51.09%	21.74%	3.60	3.00	2.00	5.00
3. Taxes and bureaucratic costs for new ventures, such as rules and regulations that burden new ventures are:	5	8	20	30	9	11	9	31.52%	35.87%	4.35%	4.08	4.00	3.00	5.00
4. The availability of quality programmes to support new entrepreneurs at local, regional and national levels is:	10	14	24	12	13	11	8	34.78%	52.17%	17.39%	3.75	3.00	2.00	5.00
5. The introduction of entrepreneurial ideas in primary and secondary schools, which inculcate in students an appreciation of entrepreneurship, research, opportunity recognition and creativity:	14	16	22	17	12	6	5	25.00%	56.52%	31.52%	3.38	3.00	2.00	4.50
6. The provision of effective courses on entrepreneurship in addition to practical training on how to set up a business in universities and business schools.	13	15	12	25	13	10	4	29.35%	43.48%	14.13%	3.61	4.00	2.00	5.00
7. The application of research results obtained from universities and study centres in the country, to develop business ventures is:	14	10	17	23	15	10	3	30.43%	44.57%	14.13%	3.62	4.00	2.00	5.00
8. Access to professional services such as lawyers and accountants to support new ventures within a framework of property rights:	9	9	8	33	13	11	9	35.87%	28.26%	-7.61%	4.10	4.00	3.00	5.00
9. The availability of free, open and growing markets where no large company controls entry or prices is:	11	10	18	21	17	9	6	34.78%	42.39%	7.61%	3.80	4.00	3.00	5.00
10. Regulations that facilitate rather than restrict the entry of new ventures into the market:	9	11	13	20	20	12	7	42.39%	35.87%	-6.52%	4.03	4.00	3.00	5.00
11. The availability of physical infrastructure such as roads, internet access and speed, and the cost and availability of physical space for entrepreneurs is:	8	8	12	34	10	13	7	32.61%	30.43%	-2.17%	4.05	4.00	3.00	5.00
12. The national culture that encourages and celebrates entrepreneurship through the dissemination of model entrepreneurs, the provision of mentors and social support for risk-taking:	8	17	11	18	22	12	4	41.30%	39.13%	-2.17%	3.88	4.00	2.00	5.00

¹Note: Percentages in bold represent the negative differences.

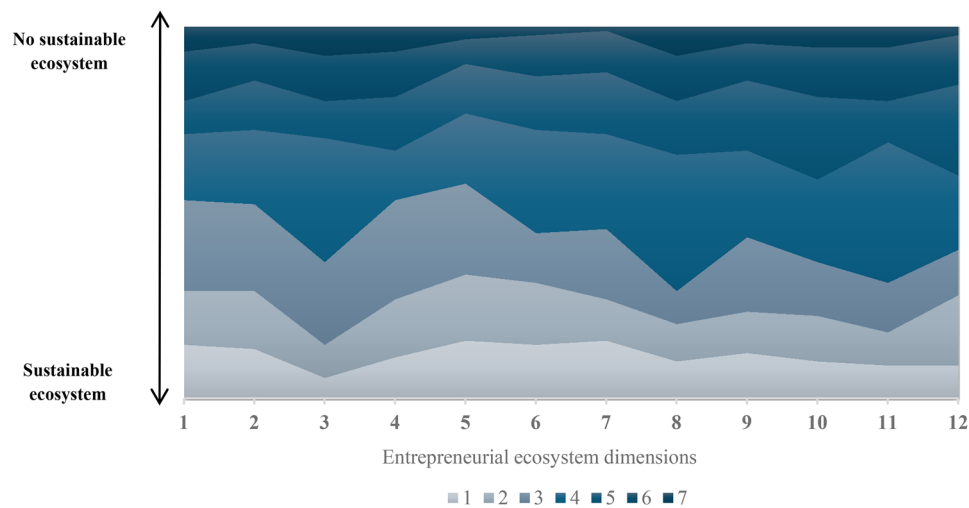


Figure 1. Comparison of frequency distribution.

that facilitate rather than restrict the entry of new ventures" (−6.51%), "11- The availability of physical infrastructure" (−2.17%), and "12- The national culture that encourages entrepreneurship" (−2.17%). Conversely, higher values of the %Diff parameter, which represent more favourable conditions for sustainable entrepreneurship, are associated to "1- The funds available for new ventures" (21.74%), "2- Government policies to promote entrepreneurship" (21.74%), "4- The availability of quality programmes to support new entrepreneurs" (17.39%), "5- The introduction of entrepreneurial ideas in primary and secondary schools" (31.52%).

Figure 1 presents the frequency distribution of responses across the 12 dimensions of the entrepreneurial ecosystem, highlighting a higher frequency of responses in the levels "5=Slightly more favourable for the development of non-sustainable ventures", "6=Rather more favourable for the development of non-sustainable ventures" and "7=Much more favourable for the development of non-sustainable ventures", regarding the dimensions: "8- Access to professional services such as lawyers and accountants", "10- Regulations that facilitate rather than restrict the entry of new ventures", "11- The availability of physical infrastructure", and "12- The national culture that encourages and celebrates entrepreneurship".

This figure also demonstrates a higher frequency of responses at the levels "1=Much more favourable to the development of sustainable ventures", "2=Rather more favourable to the development of sustainable ventures", "3=Slightly more favourable to the development of sustainable ventures" regarding the dimensions: "1 - The funds available for new ventures", "2 - Government policies to promote entrepreneurship and support new entrepreneurs", "4 - The availability of quality programmes to support new entrepreneurs" and "5 - The introduction of entrepreneurial ideas in primary and secondary schools".

As shown in Table 3, the Wilcoxon Mann-Whitney test has revealed significant differences in the distribution of several ecosystem dimensions, including "8- Access to professional services such as lawyers and accountants", "10- Regulations that facilitate market entry for new ventures", "11- The availability and cost of physical infrastructure", and "12- A national culture that encourages entrepreneurship". The z-parameter values are negative, indicating that the distribution of responses for these dimensions tends towards higher values compared to the other ecosystem dimensions, i.e. magnitudes more favourable to the unsustainable entrepreneurship ecosystem.

Moreover, as demonstrated in Table 3, the dimensions "1- The resources available for new ventures", "2- Government policies to promote entrepreneurship", "4- The availability of quality support programmes", and "5- The introduction of entrepreneurial ideas in primary and secondary schools" exhibit significant disparities when compared with other ecosystem dimensions. However, the z-values in the table indicate that the frequency distribution of these domains tends towards lower values on the scale, i.e. they are perceived as more favourable for sustainable entrepreneurship.

Table 4 presents the results of the non-parametric median comparison test based on the binomial distribution. The ecosystem dimensions that demonstrated negative differences to sustainable

entrepreneurship in Table 3 have been incorporated into the columns of Table 4. Similarly to the Wilcoxon Mann-Whitney test, median differences of less than zero were found to be statistically significant at 99% ($p < 0.01$), 95% ($p < 0.03$) or 90% ($p < 0.10$) confidence levels for the dimensions “8- Access to professional services such as lawyers and accountants”, “10- Regulations that facilitate market entry for new businesses”, “11- The availability and cost of physical infrastructure” and “12- A national culture that encourages and supports entrepreneurship”. The results indicated that the medians of these four ecosystem dimensions exhibited a tendency to higher values, suggesting that they were perceived more favourably by experts in the context of non-sustainable entrepreneurship.

Table 3. Comparison of frequency distributions.

		1	2	3 ¹	4	5	6	7	8	9	10	11	12
1. The resources available for new ventures.	z	0.00	0.46	-1.86	0.65	0.14	0.61	0.83	-2.59	0.12	-2.26	-3.37	0.15
	P-Value	1.00	0.65	0.06	0.65	0.14	0.61	0.83	0.01	0.12	0.02	0.00	0.15
2. Government policies to promote entrepreneurship.	z		0.00	-2.60	-1.15	1.54	0.06	-0.62	-3.12	-1.58	-3.40	-3.17	-2.09
	P-Value		1.00	0.01	0.26	0.12	0.95	0.54	0.00	0.12	0.00	0.00	0.04
3. Taxes and bureaucratic costs for new ventures.	z			0.00	1.60	3.49	1.85	1.51	-1.12	0.72	-0.75	-1.04	-0.03
	P-Value			1.00	0.11	0.00	0.06	0.13	0.26	0.47	0.45	0.30	0.97
4. The availability of quality support programmes for new entrepreneurs.	z				0.00	1.73	0.59	0.73	-2.43	-0.32	-1.97	-2.91	-1.40
	P-Value				1.00	0.08	0.56	0.47	0.01	0.76	0.05	0.00	0.17
5. The introduction of entrepreneurial ideas in primary and secondary schools.	z					0.00	-2.22	-2.15	-5.10	-2.79	-3.95	-4.17	-3.50
	P-Value					1.00	0.03	0.03	0.00	0.01	0.00	0.00	0.00
6. Practical training in entrepreneurship in universities.	z						0.00	-0.19	-3.61	-1.63	-2.88	-3.01	-2.00
	P-Value						1.00	0.85	0.00	0.10	0.00	0.00	0.05
7. The application of university research results to the development of new ventures.	z							0.00	-4.13	-1.07	-2.54	-3.21	-1.79
	P-Value							1.00	0.00	0.29	0.01	0.00	0.07
8. Access to professional services such as lawyers and accountants to support new ventures.	z								0.00	1.93	0.93	-0.34	1.25
	P-Value								1.00	0.05	0.35	0.73	0.21
9. The availability of free, open and growing markets that allow new ventures to enter the market.	z									0.00	-1.89	-2.49	-0.99
	P-Value									1.00	0.06	0.01	0.33
10. Regulations that make it easier for new ventures to enter the market.	z										0.00	-1.05	0.66
	P-Value										1.00	0.30	0.52
11. The availability and cost of physical infrastructure such as roads, internet access and speed.	z											0.00	1.32
	P-Value											1.00	0.19
12. A national culture that encourages and celebrates entrepreneurship.	z												0.00
	P-Value												1.00

¹Note: Numbers in bold represent statistically significant differences with 99% ($p < 0.01$), 95% ($p < 0.05$) and 90% ($p < 0.10$) confidence.

The analyses presented in Tables 2, 3 and 4 have demonstrated the discrepancies perceived by the experts with regard to the sustainable and non-sustainable entrepreneurship ecosystems. The disparities observed in both the Wilcoxon Mann-Whitney test and the median comparison test support the variations in strengths and weaknesses of the sustainable entrepreneurship ecosystem compared to the non-sustainable ecosystem, thus validating hypotheses 1 and 2.

5. Discussion

The aim of this research is to evaluate the differences perceived by entrepreneurship experts regarding the sustainable and non-sustainable ecosystem in Latin America. In particular, we sought to answer the following question: What differences between sustainable and non-sustainable entrepreneurial ecosystem are perceived by experts in Latin America? The results presented support differences in the frequency distribution of sustainable and non-sustainable ecosystem dimensions, suggesting discrepancies in the conditions of the two ecosystems. Thus, the descriptive analysis and the non-parametric hypothesis tests reported in Tables 2, 3 and 4, enabled us to validate the proposed hypotheses 1 and 2.

The present study is unique in its focus on distinguishing the ecosystem of sustainable and non-sustainable entrepreneurship in Latin America. It employs an analytical approach to identify the

Table 4. Comparison of medians.

	8 ¹			10	11		12	
1. The resources available for new ventures.	1-8 > 0	1.00	1-10 > 0	0.98	1-11 > 0	1.00	1-12 > 0	0.88
	1-8 < 0	0.01	1-10 < 0	0.05	1-11 < 0	0.00	1-12 < 0	0.18
	1-8 != 0	0.02	1-10 != 0	0.09	1-11 != 0	0.00	1-12 != 0	0.36
2. Government policies to promote entrepreneurship.	2-8 > 0	1.00	2-10 > 0	1.00	2-11 > 0	1.00	2-12 > 0	0.98
	2-8 < 0	0.00	2-10 < 0	0.00	2-11 < 0	0.00	2-12 < 0	0.04
	2-8 != 0	0.00	2-10 != 0	0.00	2-11 != 0	0.00	2-12 != 0	0.08
3. Taxes and bureaucratic costs for new ventures.	3-8 > 0	0.94	3-10 > 0	0.82	3-11 > 0	0.89	3-12 > 0	0.65
	3-8 < 0	0.10	3-10 < 0	0.26	3-11 < 0	0.17	3-12 < 0	0.45
	3-8 != 0	0.20	3-10 != 0	0.52	3-11 != 0	0.33	3-12 != 0	0.90
4. The availability of quality support programmes for new entrepreneurs.	4-8 > 0	1.00	4-10 > 0	0.96	4-11 > 0	1.00	4-12 > 0	0.94
	4-8 < 0	0.00	4-10 < 0	0.07	4-11 < 0	0.00	4-12 < 0	0.09
	4-8 != 0	0.01	4-10 != 0	0.14	4-11 != 0	0.00	4-12 != 0	0.18
5. The introduction of entrepreneurial ideas in primary and secondary schools.	5-8 > 0	1.00	5-10 > 0	1.00	5-11 > 0	1.00	5-12 > 0	1.00
	5-8 < 0	0.00	5-10 < 0	0.00	5-11 < 0	0.00	5-12 < 0	0.00
	5-8 != 0	0.00	5-10 != 0	0.00	5-11 != 0	0.00	5-12 != 0	0.00
6. Practical training in entrepreneurship in universities.	6-8 > 0	1.00	6-10 > 0	1.00	6-11 > 0	1.00	6-12 > 0	0.99
	8-8 < 0	0.00	6-10 < 0	0.00	6-11 < 0	0.00	6-12 < 0	0.03
	8-8 != 0	0.00	6-10 != 0	0.01	6-11 != 0	0.01	6-12 != 0	0.06
7. The application of university research results to the development of new ventures.	7-8 > 0	1.00	7-10 > 0	0.99	7-11 > 0	1.00	7-12 > 0	0.95
	7-8 < 0	0.00	7-10 < 0	0.02	7-11 < 0	0.00	7-12 < 0	0.09
	7-8 != 0	0.00	7-10 != 0	0.04	7-11 != 0	0.00	7-12 != 0	0.18
8. Access to professional services such as lawyers and accountants to support new ventures.			8-10 > 0	0.19	8-11 > 0	0.72	8-12 > 0	0.14
			8-10 < 0	0.88	8-11 < 0	0.38	8-12 < 0	0.92
			8-10 != 0	0.38	8-11 != 0	0.77	8-12 != 0	0.27
9. The availability of free, open and growing markets that allow new ventures to enter the market.			9-10 > 0	0.97	9-11 > 0	1.00	9-12 > 0	0.90
			9-10 < 0	0.06	9-11 < 0	0.01	9-12 < 0	0.16
			9-10 != 0	0.12	9-11 != 0	0.02	9-12 != 0	0.32
10. Regulations that make it easier for new ventures to enter the market.					10-11 > 0	0.91	10-12 > 0	0.39
					10-11 < 0	0.15	10-12 < 0	0.72
					10-11 != 0	0.29	10-12 != 0	0.77
11. The availability and cost of physical infrastructure such as roads, internet access and speed.							11-12 > 0	0.15
							11-12 < 0	0.91
							11-12 != 0	0.29

¹Note: The table shows p-values. Numbers in bold represent statistically significant validity with 99% (p<0.01), 95% (p<0.05) and 90% (p<0.10) confidence.

differences that generate specific challenges and opportunities for entrepreneurs seeking to develop businesses focused on the wellbeing of communities and care for the environment. From a theoretical approach, the entrepreneurship ecosystem, predicated on dynamically interacting factors and actors, constitutes a fundamental concept in the domain of entrepreneurial behaviour. Within this framework, this study posits that the sustainable ecosystem manifests itself through its own characteristics, engendering a distinct context for the creation and development of businesses that prioritise environmental protection and community well-being. Therefore, this research contributes to the identification of conditions that differentiate between sustainable and non-sustainable entrepreneurship ecosystems.

The results obtained show that the experts have a more favourable perception of the sustainable entrepreneurship ecosystem, mainly, regarding the funds available for new ventures, government policies to promote entrepreneurship, and the introduction of entrepreneurial ideas in primary and secondary schools. The heightened appreciation of these conditions in sustainable entrepreneurship can be attributed to the increased emphasis on promotion, public policies and educational initiatives in this region in recent years. The promotion of entrepreneurship has been recognised as a pivotal strategy for development, where education plays a crucial role in cultivating and reinforcing entrepreneurial competencies (Martínez & Higuera, 2024; Rosero & Gómez, 2010). The notion of shared value and its intersection with human rights and sustainability has gained traction in Latin America (Amorós et al., 2024). The more favourable perception of access to finance may be related to efforts to improve financial support for enterprises through specific programmes in this region (Feijó-Cuenca et al., 2023; Guevara & Riutort, 2024), which tend to prioritise business initiatives that promote sustainability (Mejia-Escobar et al., 2020).

On the contrary, the results show a less favourable perception by the experts of the sustainable entrepreneurship ecosystem with respect to access to professional services, the availability and cost of physical infrastructure, the regulations that facilitate market entry for new businesses, and the support of a national culture that encourages entrepreneurship. These findings are in line with statements that indicate that key factors that hinder entrepreneurs from achieving sustainable business and innovation include regulatory barriers, challenges in finding skilled labour, poor infrastructure and technology (Agrawal et al., 2024).

Research indicates that in order to thrive in a sustainable manner, businesses must establish a wide range of infrastructures, including logistics, transportation, and information and communication technology (ICT). In particular, sustainable entrepreneurs may encounter challenges in accessing supportive infrastructure and skilled advisors, which can further complicate their efforts and make it difficult to mobilise resources and effectively navigate the entrepreneurial landscape (Hoogendoorn et al., 2019). Enhancing transport infrastructure and logistics enables businesses to expand market accessibility and promote sustainable industrialisation, thereby fostering innovation and economic growth while ensuring environmental sustainability (Terzi & Kula, 2024). Watson et al. (2023) explored how policy can foster conditions conducive to sustainable entrepreneurship. They proposed a multi-level policy framework that outlines six mechanisms: resource prioritisation, competency building, sustainable market creation, networked sharing, collaborative replication and impact valuation.

As indicated by previous studies, the availability of opportunities and access to markets are also key factors in the development of sustainable ventures. Pankov et al. (2021b) argued that the first set of contextual factors enhance sustainable activities by enforcing the adaptation of behavioural rules and by enabling the development of organisational capabilities, and that the second set of contextual factors restricts sustainable activities by impeding market penetration and by suppressing growth. DiVito and Ingen-Housz (2021) demonstrated that recognising sustainable opportunities, mobilising resources, and establishing markets for sustainable products are all relevant contextual conditions that influence the development of sustainable ventures.

In addition, Vicentin et al. (2024) argued that cultural elements exert a significant influence on the conduct of individuals and organisations. Therefore, evaluating the interaction between culture and other components of entrepreneurial ecosystems has become a subject of critical interest. In Latin America, the perception of a national culture that encourages and supports sustainable entrepreneurship may be more unfavourable perceived due to the prevalence of social inequality and poverty (Zapata-Cantu & González, 2021). These socio-economic issues give rise to necessity entrepreneurship, which refers to individuals engaging in entrepreneurial activities primarily due to a perceived lack of

viable alternative livelihood options (O'Donnell et al., 2024). This kind of business, which focuses on subsistence income, may neglect environmental and social concerns and be associated with mass commodity trade. Dhahri et al. (2021) found, using data from twenty developing countries, that long-term estimates show that opportunity entrepreneurship has a positive effect on sustainable development, while necessity entrepreneurship has a negative effect on environmental sustainability. Thus, it is possible that in Latin American countries, due to lower economic development and greater social inequality, entrepreneurship is mainly valued as a means of economic progress and social mobility.

The findings of the present study carry significant practical implications for policymakers, entrepreneurs and ecosystem managers. The results obtained suggest the necessity of implementing public policies and support programmes that encourage market dynamism and their openness to new sustainable businesses. According to Kolozsi (2023), the inherent flexibility of open markets is vital for the adaptability required for sustainable enterprises to thrive in a constantly evolving global economic landscape. Furthermore, preferential procurement initiatives have the potential to significantly improve market accessibility for entrepreneurs, especially those from minority backgrounds. These initiatives facilitate the identification of opportunities by broadening the spectrum of discernible prospects, augmenting positive assessments from governmental and corporate entities, and offering frameworks for capitalising on minority status through formal certification processes (Shelton & Minniti, 2018).

The results obtained also should address to managers of higher education institutions who are responsible for training specialised professionals to support sustainable entrepreneurship. Higher Education institutions should foster the availability of professionals specialised in sustainable business as layers, accounts and engineers, also strengthening the physical and technical infrastructure to support communications and logistics for sustainable ventures. In order to enhance the academic offerings of higher education institutions, there is a necessity to consider the implementation of actualization programmes and postgraduate degrees. The purpose of this would be to facilitate the updating of professionals' knowledge on technologies, regulations and sustainable production processes.

Furthermore, it is essential to cultivate a national culture that promotes enhanced appreciation and acknowledgment of sustainable entrepreneurship within Latin American nations, in contrast to a paradigm that mainly prioritises entrepreneurs pursuing individual financial interest. Bate et al. (2024) argued that, in order to encourage a national culture that is conducive to entrepreneurship, emphasis must be placed on integrating cultural dimensions such as individualism and a long-term orientation, and that Stakeholders are encouraged to formulate policies that promote these cultural attributes in conjunction. Kleinhempel et al. (2023) proposed that this objective can be achieved through educational frameworks that place entrepreneurial competencies at the forefront, encourage risk-taking, and recognise successful entrepreneurs as role models. These approaches could be adapted to cultivate a more favourable culture towards sustainable entrepreneurship in Latin America.

6. Conclusions

This study provides new evidence on the contextual conditions that influence the creation of sustainable ventures. In a unique way, this study has sought to differentiate the sustainable and non-sustainable entrepreneurship ecosystems in Latin America, suggesting that the sustainable entrepreneurship ecosystem is different in terms of the challenges and opportunities it creates for entrepreneurs seeking to develop businesses focused on the well-being of communities and care for the environment. The study's findings suggest that when evaluating sustainable entrepreneurship ecosystems in Latin American countries, greater attention should be given to analysing professional and physical infrastructure, market access, and cultural factors. In this regard, it is essential to develop measurement tools that can comprehensively assess these ecosystem dimensions. This will enable us to identify and address infrastructure, market and cultural issues that are unique to specific countries or regions within the region. A more detailed diagnosis would facilitate the establishment of public policies and the development of targeted programmes and projects to strengthen sustainable ventures.

The results of this study are of particular importance, since, within the context of Latin America, sustainable entrepreneurship is catalysing economic advancement while simultaneously addressing pressing social and environmental issues. It plays a pivotal role in alleviating poverty and mitigating

environmental degradation by embedding sustainability into business methodologies that have the potential to generate enduring value, improve community welfare, and contribute to the development of green economies. In light of the considerable challenges confronting this region, including climate change, instability, unpredictability, and threats to human existence resulting from anthropogenic activities that have precipitated an environmental crisis (Franchini & Viola, 2022), it is essential to enhance the conditions that support sustainable entrepreneurship. In addition, this research could be considered by decision-makers in countries on other continents with similar levels of economic and social development that are facing social and environmental challenges, such as countries in Europe with comparatively lower levels of economic and human development.

7. Limitations

This study analyses a survey of entrepreneurship experts in Latin America, and their selection was conducted through convenience sampling, which has limitations in the generalisation of the results of the study (Jager et al., 2017). Despite the fact that the sample obtained in this study includes entrepreneurship experts from a variety of countries, genders, ages, levels of study and experience in entrepreneurship, which improves representativeness by including different characteristics, it would be advisable for future studies to incorporate other sampling methods.

The quantitative approach used in this study has some limitations as it focuses primarily on measuring phenomena and drawing conclusions through statistical analysis, which may overlook the depth and complexity of personal experiences (Labuschagne, 2003). Moreover, this research compares the sustainable and non-sustainable entrepreneurship ecosystem by Latin American experts on a global basis, however, Latin American countries present some differences in economic and technological development and in their political systems (Grinberg, 2022).

8. Future research

It is appropriate that future studies conduct independent analyses among Latin American countries to deepen the differences in the attributes of their sustainable entrepreneurial ecosystems between countries. This requires a larger sample size that incorporates a significant number of experts from each country in the region. Future studies could assess differences regarding experts' assessments by their entrepreneurship experience, academic degree, age or gender, among other conditions.

As has been established, future research should examine entrepreneurial ecosystems through qualitative methods. This approach allows for the analysis of complex entrepreneurial systems using comparative analysis, agent-based modelling, and interpretivist methods (Roundy et al., 2018; Schrijvers et al., 2024). The knowledge obtained through qualitative methods can guide the design of new measurement instruments to assess infrastructure, access to markets and culture in the sustainable entrepreneurship ecosystem, going deeper into the different experiences by country. A better understanding would contribute to the development of a proposal for a sustainable entrepreneurship ecosystem for the region, specifying qualities such as its configuration of actors and factors, its phases and processes.

Furthermore, subsequent research could involve the utilisation of parametric tests for the purpose of comparing central tendency, including the two-sample t-test and the ANOVA. The execution of these tests necessitates the adherence of the data within each group to a normal (Gaussian) distribution. Furthermore, it should be noted that the aforementioned tests are predicated on the assumption that the variances between the groups being tested are equal (Ledolter et al., 2020).

Authors' contributions

CRedit: Gustavo Barrera-Verdugo: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Visualization, Writing—original draft, Writing—review & editing; Jaime Cadena-Echeverría: Investigation, Project administration, Resources, Supervision, Writing—review & editing; Daniel Durán-Sandoval: Funding acquisition, Investigation, Project administration, Resources, Supervision, Writing—review & editing. All authors have read and approved the final manuscript.

Ethical statement

The research involved human participants. The authors confirm that the research adhered to the Declaration of Helsinki and that written informed consent was obtained from all participants.

Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this work the author(s) used DeepL Write in order to support language and readability. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

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Data availability statement

The data that support the findings of this study are available from the corresponding author, Gustavo Barrera-Verdugo, upon reasonable request.

References

- Acs, Z. J., Stam, E., Audretsch, D. B., & O'Connor, A. (2017). The lineages of the entrepreneurial ecosystem approach. *Small Business Economics*, 49(1), 1–10. <https://doi.org/10.1007/s11187-017-9864-8>
- Agrawal, R., Samadhiya, A., Banaitis, A., & Kumar, A. (2024). Entrepreneurial barriers in achieving sustainable business and cultivation of innovation: A resource-based view theory perspective. *Management Decision*, 63(4), 1207–1228. <https://doi.org/10.1108/MD-11-2023-2032>
- Aliabadi, V., Ataei, P., Gholamrezai, S., & Aazami, M. (2019). Components of sustainability of entrepreneurial ecosystems in knowledge-intensive enterprises: The application of fuzzy analytic hierarchy process. *Small Enterprise Research*, 26(3), 288–306. <https://doi.org/10.1080/13215906.2019.1671215>

- Amorós, J. E., Bonomo-Odizzio, A., & Sosa-Varela, J. C. (2024). Guest editorial: Sustainable entrepreneurship: A new approach in Latin America and the Caribbean. *Management Research: Journal of the Iberoamerican Academy of Management*, 22(3), 213–229. <https://doi.org/10.1108/MRJAM-08-2024-977>
- Amorós, J. E., Felzensztein, C., & Gimmon, E. (2013). Entrepreneurial opportunities in peripheral versus core regions in Chile. *Small Business Economics*, 40(1), 119–139. <https://doi.org/10.1007/s11187-011-9349-0>
- Ashton, W. S., Hurtado-Martin, M., Anid, N. M., Khalili, N. R., Panero, M. A., & McPherson, S. (2017). Pathways to cleaner production in the Americas I: Bridging industry-academia gaps in the transition to sustainability. *Journal of Cleaner Production*, 142, 432–444. <https://doi.org/10.1016/j.jclepro.2016.03.116>
- Avelar, S., Borges-Tiago, T., Almeida, A., & Tiago, F. (2024). Confluence of sustainable entrepreneurship, innovation, and digitalization in SMEs. *Journal of Business Research*, 170, 114346. <https://doi.org/10.1016/j.jbusres.2023.114346>
- Awan, U., Sroufe, R., & Shahbaz, M. (2021). Industry 4.0 and the circular economy: A literature review and recommendations for future research. *Business Strategy and the Environment*, 30(4), 2038–2060. <https://doi.org/10.1002/bse.2731>
- Bakry, D., Daim, T., Alzahrani, S., Dabic, M., & Yesilada, B. (2025). Exploring innovation ecosystems to facilitate the adoption of sustainable entrepreneurship: Looking beyond the Western World. *Journal of Small Business Management*, 63(1), 337–387. <https://doi.org/10.1080/00472778.2024.2319782>
- Bate, A. F., Pittaway, L., & Sándor, D. (2024). Unveiling the influence of national culture on entrepreneurship: Systematic literature review. *Journal of Entrepreneurship in Emerging Economies*. Advance online publication. <https://doi.org/10.1108/JEEE-09-2023-0398>
- Bergman, B. J.Jr. (2025). The power, process, and potential of mapping an entrepreneurial ecosystem. *Business Horizons*, 68(1), 55–66. <https://doi.org/10.1016/j.bushor.2023.12.005>
- Bertello, A., Battisti, E., De Bernardi, P., & Bresciani, S. (2022). An integrative framework of knowledge-intensive and sustainable entrepreneurship in entrepreneurial ecosystems. *Journal of Business Research*, 142, 683–693. <https://doi.org/10.1016/j.jbusres.2021.12.054>
- Bischoff, K. (2021). A study on the perceived strength of sustainable entrepreneurial ecosystems on the dimensions of stakeholder theory and culture. *Small Business Economics*, 56(3), 1121–1140. <https://doi.org/10.1007/s11187-019-00257-3>
- Bonfanti, A., De Crescenzo, V., Simeoni, F., & Adaui, C. R. L. (2024). Convergences and divergences in sustainable entrepreneurship and social entrepreneurship research: A systematic review and research agenda. *Journal of Business Research*, 170, 114336. <https://doi.org/10.1016/j.jbusres.2023.114336>
- Cao, Z., & Shi, X. (2021). A systematic literature review of entrepreneurial ecosystems in advanced and emerging economies. *Small Business Economics*, 57(1), 75–110. <https://doi.org/10.1007/s11187-020-00326-y>
- Cavallo, A., Colombelli, A., D'Amico, E., & Paolucci, E. (2023). “Balanced” or “polarized” entrepreneurial ecosystem types? Evidence from Italy. *The Journal of Technology Transfer*, 48(5), 1860–1889. <https://doi.org/10.1007/s10961-023-10018-w>
- Chakraborty, A., & Chaudhuri, P. (2015). A Wilcoxon–Mann–Whitney-type test for infinite-dimensional data. *Biometrika*, 102(1), 239–246. <https://doi.org/10.1093/biomet/asu072>
- Chaudhary, S., Kaur, P., Alofaysan, H., Halberstadt, J., & Dhir, A. (2023). Connecting the dots? Entrepreneurial ecosystems and sustainable entrepreneurship as pathways to sustainability. *Business Strategy and the Environment*, 32(8), 5935–5951. <https://doi.org/10.1002/bse.3466>
- Chaudhary, S., Kaur, P., Ferraris, A., Bresciani, S., & Dhir, A. (2024). Connecting entrepreneurial ecosystem and innovation: Grasping at straws or hitting a home run? *Technovation*, 130, 102942. <https://doi.org/10.1016/j.technovation.2023.102942>
- Chen, J., Saarenketo, S., & Puumalainen, K. (2016). Internationalization and value orientation of entrepreneurial ventures: A Latin American perspective. *Journal of International Entrepreneurship*, 14(1), 32–51. <https://doi.org/10.1007/s10843-016-0169-9>
- Crespo, N. (2019). Entrepreneurial universities: Collaboration, education and policies. *Journal of Small Business & Entrepreneurship*, 31(3), 265–267. <https://doi.org/10.1080/08276331.2018.1485543>
- Daniel, L. J., de Villiers Scheepers, M. J., Miles, M. P., & de Klerk, S. (2022). Understanding entrepreneurial ecosystems using complex adaptive systems theory: Getting the big picture for economic development, practice, and policy. *Entrepreneurship & Regional Development*, 34(9–10), 911–934. <https://doi.org/10.1080/08985626.2022.2083691>
- Janeska – Iliev, A., Debarliev, S., & Drakulevski, L. (2020). Building up the base for entrepreneurship: The meaning of university in the entrepreneurial ecosystem. In M. Santa (Eds.), *Proceedings of the 1st International Conference on Economic and Business Trends Shaping the Future* (pp. 365–377).
- Dhahri, S., Slimani, S., & Omri, A. (2021). Behavioral entrepreneurship for achieving the sustainable development goals. *Technological Forecasting and Social Change*, 165, 120561. <https://doi.org/10.1016/j.techfore.2020.120561>
- Dijkstra, H., & Planko, J. (2023). The roles of sustainable entrepreneurs in tackling societal challenges: Quantifying how sustainable plastic companies act to create system change. *Sustainable Production and Consumption*, 39, 534–545. <https://doi.org/10.1016/j.spc.2023.05.028>
- DiVito, L., & Ingen-Housz, Z. (2021). From individual sustainability orientations to collective sustainability innovation and sustainable entrepreneurial ecosystems. *Small Business Economics*, 56(3), 1057–1072. <https://doi.org/10.1007/s11187-019-00254-6>

- Espinoza-Benavides, J., Guerrero, M., & Díaz, D. (2021). Dissecting the ecosystems' determinants of entrepreneurial re-entry after a business failure. *European Business Review*, 33(6), 975–998. <https://doi.org/10.1108/EBR-09-2020-0222>
- Feijó-Cuenca, N., Ceular-Villamandos, N., & Navajas-Romero, V. (2023). Behavioral patterns that influence the financing choice models of small enterprises in Ecuador through latent class analysis. *Sustainability*, 15(8), 6790. <https://doi.org/10.3390/su15086790>
- Feinberg, R. E. (2014). Entrepreneurship in Latin America: A step up the social ladder? *Foreign Affairs*, 93(3), 187–188.
- Feltoovich, N. (2003). Nonparametric tests of differences in medians: Comparison of the Wilcoxon–Mann–Whitney and robust rank-order tests. *Experimental Economics*, 6(3), 273–297. <https://doi.org/10.1023/A:1026273319211>
- Ferreira, J. J., Grigoroudis, E., Carayannis, E. G., & Dooley, L. (2023). The role of entrepreneurial ecosystems in technological and social challenges. *R&D Management*, 53(4), 563–583. <https://doi.org/10.1111/radm.12634>
- Fischer, B. B., Alves, A. C., Vonortas, N. S., & Brown, R. (2024). Foundations of entrepreneurial ecosystems configurations. *The Journal of Technology Transfer*. Advance online publication. <https://doi.org/10.1007/s10961-024-10147-w>
- Franchini, M., & Viola, E. (2022). América Latina en la gobernanza del Antropoceno: Desafíos y propuestas. *Cuadernos Del CLAEH*, 41(116), 11–34. <https://doi.org/10.29192/claeH.41.2.2>
- García-Álvarez, J., Vázquez-Rodríguez, A., & Sáez-Gambín, D. (2024). Culture and education as factors affecting entrepreneurship in Spain: An analysis of expert opinion. *International Journal of Education Economics and Development*, 15(1/2), 98–118. <https://doi.org/10.1504/IJED.2024.136198>
- Global Entrepreneurship Monitor. (2025). Global Entrepreneurship Monitor 2024/2025 global report: Entrepreneurship reality check. GEM.
- Grinberg, N. (2022). From populism to neoliberalism: The political economy of Latin American import-substitution industrialization: Argentina, Brazil, Mexico and Colombia in comparative perspective. *Latin American Perspectives*, 49(2), 183–206. <https://doi.org/10.1177/0094582X211063503>
- Guevara, Ó. J., & Riutort, J. (2024). Strengthening secured creditors: Implications on debt financing and investment. *Journal of Corporate Finance*, 84, 102537. <https://doi.org/10.1016/j.jcorpfin.2023.102537>
- Hardie, B., Lee, K., & Highfield, C. (2022). Characteristics of effective entrepreneurship education post-COVID-19 in New Zealand primary and secondary schools: A Delphi study. *Entrepreneurship Education*, 5(2), 199–218. <https://doi.org/10.1007/s41959-022-00074-y>
- Hart, M., Bonner, K., Prashar, N., Ri, A., Levie, J., & Mwaura, S. (2020). Global Entrepreneurship Monitor: United Kingdom 2019 monitoring report. https://pureportal.strath.ac.uk/files/113613069/Hart_etal_2020_Global_Entrepreneurship_Monitor_United_Kingdom_2019_Monitoring.pdf
- Hechavarria, D. M., & Ingram, A. (2014). A review of the entrepreneurial ecosystem and the entrepreneurial society in the United States: An exploration with the global entrepreneurship monitor dataset. *Journal of Business and Entrepreneurship*, 26(1), 1–35.
- Hechavarría, D. M., & Ingram, A. E. (2019). Entrepreneurial ecosystem conditions and gendered national-level entrepreneurial activity: A 14-year panel study of GEM. *Small Business Economics*, 53(2), 431–458. <https://doi.org/10.1007/s11187-018-9994-7>
- Hoogendoorn, B., Van der Zwan, P., & Thurik, R. (2019). Sustainable entrepreneurship: The role of perceived barriers and risk. *Journal of Business Ethics*, 157(4), 1133–1154. <https://doi.org/10.1007/s10551-017-3646-8>
- Hrušková, M. (2024). Ecosystem pipelines: Collective action in entrepreneurial ecosystems. *International Small Business Journal*, 42(1), 39–66. <https://doi.org/10.1177/02662426231178381>
- Huang, Y., Li, P., Bu, Y., & Zhao, G. (2023). What entrepreneurial ecosystem elements promote sustainable entrepreneurship? *Journal of Cleaner Production*, 422, 138459. <https://doi.org/10.1016/j.jclepro.2023.138459>
- Inácio, E., Gimenez, F. A. P., & Stefenon, R. (2024). Configurations of entrepreneurial ecosystems: An analysis based on GEM data. *Revista Brasileira de Inovação*, 23, e024011–37. <https://doi.org/10.20396/rbi.v23i00.8673378>
- Ismail, A., Farooq, S., & Rolle, J. D. (2022). Promoting an ecosystem approach for inclusive and sustainable entrepreneurship in underserved communities. In *Sustainability and the Future of Work and Entrepreneurship for the Underserved* (pp. 67–82). IGI Global.
- Jager, J., Putnick, D. L., & Bornstein, M. H. (2017). More than just convenient: The scientific merits of homogeneous convenience samples. *Monographs of the Society for Research in Child Development*, 82(2), 13–30. <https://doi.org/10.1111/mono.12296>
- Javed, M. K., Sohail Tahir, M., Ahmad, J., Wasaya, A., Ahmed, A. U., Orangzab, ... & Ahmed, M. (2024). A model of sustainable entrepreneurial behavior. *Tourism and Hospitality Research*. Advance online publication. <https://doi.org/10.1177/14673584241263029>
- Karimi, H., & Ataei, P. (2022). The effect of entrepreneurship ecosystem on the entrepreneurial skills of agriculture students: The mediating role of social intelligence and emotional intelligence (The case of University of Zabol, Iran). *Current Psychology (New Brunswick, N.J.)*, 42(27), 1–15. <https://doi.org/10.1007/s12144-022-03479-z>
- Khokhawala, S. M., & Iyer, R. (2024). A comprehensive examination of entrepreneurial networking within the Indian entrepreneurial ecosystem. *South Asian Journal of Business and Management Cases*, 13(2), 187–208. <https://doi.org/10.1177/2277977924127411>
- Klasik, D., & Zahran, W. (2022). The art of sophisticated quantitative description in higher education research. In *Higher Education: Handbook of Theory and Research* (Vol. 37, pp. 649–743). Springer. https://doi.org/10.1007/978-3-030-76660-3_12

- Kleinhempel, J., Klasing, M. J., & Beugelsdijk, S. (2023). Cultural roots of entrepreneurship: Evidence from second-generation immigrants. *Organization Science*, 34(5), 1800–1819. <https://doi.org/10.1287/orsc.2022.1645>
- Kolozsi, P. P. (2023). New economics for sustainability. *Pénzügyi Szemle=Public Finance Quarterly*, 69(1), 114–118. https://doi.org/10.35551/PFQ_2023_1_8
- Koseoglu, M. A., & Arici, H. E. (2025). An empirical analysis of the entrepreneurial ecosystem and its impact on economic growth across different income levels. *Journal of Entrepreneurship and Public Policy*. Advance online publication. <https://doi.org/10.1108/JEPP-09-2024-0158>
- Krzywinski, M., & Altman, N. (2014). Points of significance: Nonparametric tests. *Nature Methods*, 11(5), 467–468. <https://doi.org/10.1038/nmeth.2937>
- Kumar, R. K., Pasumarti, S. S., Figueiredo, R. J., Singh, R., Rana, S., Kumar, K., & Kumar, P. (2024). Innovation dynamics within the entrepreneurial ecosystem: A content analysis-based literature review. *Humanities and Social Sciences Communications*, 11(1), 1–15. <https://doi.org/10.1057/s41599-024-02817-9>
- Labuschagne, A. (2003). Qualitative research: Airy fairy or fundamental. *The Qualitative Report*, 8(1), 100–103.
- Ledolter, J., Gramlich, O. W., & Kardon, R. H. (2020). Parametric statistical inference for comparing means and variances. *Investigative Ophthalmology & Visual Science*, 61(8), 25–25. <https://doi.org/10.1167/iovs.61.8.25>
- Letnik, T., Hanžič, K., Mencinger, M., & Sever, D. (2023). Impact of transport trends on sustainability in the Western Balkans: A future-oriented business sector perspective. *Sustainability*, 16(1), 272. <https://doi.org/10.3390/su16010272>
- Liguori, E., Bendickson, J., Solomon, S., & McDowell, W. C. (2019). Development of a multi-dimensional measure for assessing entrepreneurial ecosystems. *Entrepreneurship & Regional Development*, 31(1-2), 7–21. <https://doi.org/10.1080/08985626.2018.1537144>
- Ma, L., & Soriano, J. (2018). Analysis of distributional variation through graphical multi-scale Beta-Binomial models. *Journal of Computational and Graphical Statistics*, 27(3), 529–541. <https://doi.org/10.1080/10618600.2017.1402774>
- Manyara, A. M., Purvis, A., Ciani, O., Collins, G. S., & Taylor, R. S. (2024). Sample size in multistakeholder Delphi surveys: At what minimum sample size do replicability of results stabilize? *Journal of Clinical Epidemiology*, 174, 111485. <https://doi.org/10.1016/j.jclinepi.2024.111485>
- Martínez, C. N., & Bañón, A. R. (2023). The business creation process and Latin American entrepreneurs. *Latin American Research Review*, 58(1), 90–109. <https://doi.org/10.1017/lar.2022.18>
- Martínez-Fierro, S., Biedma-Ferrer, J. M., & Ruiz-Navarro, J. (2015). Las condiciones del entorno emprendedor y el desarrollo económico: Un análisis de los países GEM. *Revista de Economía Mundial*, 41, 181–212. <https://doi.org/10.33776/rem.v0i41.3939>
- Martínez, G. C., & Higuera, J. P. (2024). Educación en emprendimiento y sostenibilidad para la configuración de intenciones emprendedoras sostenibles en estudiantes universitarios. *Telos: Revista de Estudios Interdisciplinarios En Ciencias Sociales*, 26(2), 709–724.
- McGehee, N. G., & Kline, C. S. (2008). Entrepreneurship and the rural tourism industry: A primer. In *Building Community Capacity for Tourism Development* (pp. 123–141). CABI. <https://doi.org/10.1079/9781845934477.0123>
- Mejia-Escobar, J. C., González-Ruiz, J. D., & Duque-Grisales, E. (2020). Sustainable financial products in the Latin America banking industry: Current status and insights. *Sustainability*, 12(14), 5648. <https://doi.org/10.3390/su12145648>
- Mitchell, R. K., Smith, B., Seawright, K. W., & Morse, E. A. (2000). Cross-cultural cognitions and the venture creation decision. *Academy of Management Journal*, 43(5), 974–993. <https://doi.org/10.5465/1556422>
- Nguyen, H. N., Lasa, G., Iriarte, I., Atxa, A., Unamuno, G., & Galfarsoro, G. (2022). Datasets of skills-rating questionnaires for advanced service design through expert knowledge elicitation. *Scientific Data*, 9(1), 321. <https://doi.org/10.1038/s41597-022-01421-3>
- O'Connor, A., & Audretsch, D. (2023). Regional entrepreneurial ecosystems: Learning from forest ecosystems. *Small Business Economics*, 60(3), 1051–1079. <https://doi.org/10.1007/s11187-022-00623-8>
- O'Donnell, P., Leger, M., O'Gorman, C., & Clinton, E. (2024). Necessity entrepreneurship. *Academy of Management Annals*, 18(1), 44–81. <https://doi.org/10.5465/annals.2021.0176>
- Owen, R., Vedanthachari, L. N., & Hussain, J. (2024). The role of the university entrepreneurial ecosystem in entrepreneurial finance: Case studies of UK innovation knowledge centres. *Venture Capital*, 26(3), 351–375. <https://doi.org/10.1080/13691066.2023.2205606>
- Pankov, S., Schneckenberg, D., & Velamuri, V. K. (2021a). Advocating sustainability in entrepreneurial ecosystems: Micro-level practices of sharing ventures. *Technological Forecasting and Social Change*, 166, 120654. <https://doi.org/10.1016/j.techfore.2021.120654>
- Pankov, S., Velamuri, V. K., & Schneckenberg, D. (2021b). Towards sustainable entrepreneurial ecosystems: Examining the effect of contextual factors on sustainable entrepreneurial activities in the sharing economy. *Small Business Economics*, 56(3), 1073–1095. <https://doi.org/10.1007/s11187-019-00255-5>
- Popescu, N. E., Panța, N. D., & Nikitović, Z. (2024). Comparative insights into entrepreneurship in Romania and Serbia: A gem-based analysis. *Revista Economica*, 76(2), 96–108. <https://doi.org/10.56043/reveco-2024-0020>
- Rojo-Suárez, J., Alonso-Conde, A. B., & Gonzalez-Ruiz, J. D. (2024). Does sustainability improve financial performance? An analysis of Latin American oil and gas firms. *Resources Policy*, 88, 104484. <https://doi.org/10.1016/j.resourpol.2023.104484>

- Romero-Colmenares, L. M., & Reyes-Rodríguez, J. F. (2022). Sustainable entrepreneurial intentions: Exploration of a model based on the theory of planned behaviour among university students in north-east Colombia. *The International Journal of Management Education*, 20(2), 100627. <https://doi.org/10.1016/j.ijme.2022.100627>
- Rosero, A. C. T., & Gómez, G. L. (2010). Visión del emprendimiento desde el Estado y la universidad: El plan de desarrollo de Antioquia visión 2020 con el programa de emprendimiento de la UPB. *Revista Ciencias Estratégicas*, 18(23), 119–129.
- Roundy, P. T., Bradshaw, M., & Brockman, B. K. (2018). The emergence of entrepreneurial ecosystems: A complex adaptive systems approach. *Journal of Business Research*, 86, 1–10. <https://doi.org/10.1016/j.jbusres.2018.01.032>
- Saaty, T. L. (2008). Relative measurement and its generalization in decision making: Why pairwise comparisons are central in mathematics for the measurement of intangible factors—The analytic hierarchy/network process. *RACSAM—Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales. Serie A. Matemáticas*, 102(2), 251–318. <https://doi.org/10.1007/BF03191825>
- Sánchez, D., & Aguilar, K. (2020). El mercado verde en Latinoamérica y la responsabilidad social empresarial. *Minerva*, 1(3), 40–44. <https://doi.org/10.47460/minerva.v1i3.16>
- Santos, J. B., Fernandes, A. R., de Oliveira, P. T., Maia, L. M., & Partyka, R. B. (2023). Increasing entrepreneurial ecosystem-level outcomes through orchestration: A proposed framework. *Technovation*, 128, 102873. <https://doi.org/10.1016/j.technovation.2023.102873>
- Sarvari, H., Asaadsamani, P., Olawumi, T. O., Chan, D. W., Rashidi, A., & Beer, M. (2024). Perceived barriers to implementing building information modeling in Iranian small and medium-sized enterprises (SMEs): A Delphi survey of construction experts. *Archives of Engineering Design and Management*, 1(1), 1–21. <https://doi.org/10.1080/17452007.2024.2329687>
- Schrijvers, M., Stam, E., & Bosma, N. (2024). Figuring it out: Configurations of high-performing entrepreneurial ecosystems in Europe. *Regional Studies*, 58(5), 1096–1110. <https://doi.org/10.1080/00343404.2023.2226727>
- Seghezze, L., Huaranca, L. L., Vega, M. L., Jeckeln, G. V., Avalos, M. A., Iribarnegaray, M. A., Volante, J. N., Serrano, F. H. M., Mastrangelo, M., Sun, Z., & Müller, D. (2020). Sustainable farmers, deficient State? Self-reported agricultural sustainability in the Argentine Chaco region. *International Journal of Agricultural Sustainability*, 18(6), 473–491. <https://doi.org/10.1080/14735903.2020.1793645>
- Segovia-Hernández, J. G., Hernández, S., Cossío-Vargas, E., & Sánchez-Ramírez, E. (2022). Tackling sustainability challenges in Latin America and the Caribbean from the chemical engineering perspective: A literature review in the last 25 years. *Chemical Engineering Research and Design*, 188, 483–527. <https://doi.org/10.1016/j.cherd.2022.10.012>
- Shelton, L. M., & Minniti, M. (2018). Enhancing product market access: Minority entrepreneurship, status leveraging, and preferential procurement programs. *Small Business Economics*, 50(3), 481–498. <https://doi.org/10.1007/s11187-017-9881-7>
- Sherman, K., Sevilla, N. P. M., Torres, P. A., & Peterson, B. (2017). Sustainable development of Latin American and the Caribbean large marine ecosystems. *Environmental Development*, 22, 1–8. <https://doi.org/10.1016/j.envdev.2017.04.001>
- Sitaridis, I., & Kitsios, F. (2020). Competitiveness analysis and evaluation of entrepreneurial ecosystems: A multi-criteria approach. *Annals of Operations Research*, 294(1-2), 377–399. <https://doi.org/10.1007/s10479-019-03404-x>
- Spigel, B. (2017). The relational organization of entrepreneurial ecosystems. *Entrepreneurship Theory and Practice*, 41(1), 49–72. <https://doi.org/10.1111/etap.12167>
- Stam, E. (2015). Entrepreneurial ecosystems and regional policy: a sympathetic critique. *European Planning Studies*, 23(9), 1759–1769. <https://doi.org/10.1080/09654313.2015.1061484>
- Stam, E., & van de Ven, A. (2021). Entrepreneurial ecosystem elements. *Small Business Economics*, 56(2), 809–832. <https://doi.org/10.1007/s11187-019-00270-6>
- Szromek, A. R., Kruczek, Z., Walas, B., & Polok, G. (2023). The method and scope of open innovation exchange in tourist destinations: Analysis of the opinions of tourism experts from Prague and Cracow. *Journal of Open Innovation: Technology, Market, and Complexity*, 9(1), 100005. <https://doi.org/10.1016/j.joitmc.2023.02.002>
- Terzi, A., & Kula, B. B. (2024). The role of logistics in industry, innovation, and infrastructure. In *Effective logistics for sustainable development goals* (pp. 99–125). IGI Global.
- Theodoraki, C. (2024). Building entrepreneurial ecosystems sustainably. *Foundations and Trends® in Entrepreneurship*, 20(4), 384–480. <https://doi.org/10.1561/03000000128>
- Vicentin, D. C., Moraes, G. H. S. M. D., Fischer, B. B., Campello, B. S. C., Prado, N. B. D., & Anholon, R. (2024). The interdependence between the Entrepreneurial Ecosystem and Entrepreneurial Culture—An analysis with sustainable and traditional entrepreneurs. *Journal of Cleaner Production*, 466, 142821. <https://doi.org/10.1016/j.jclepro.2024.142821>
- Watson, R., Nielsen, K. R., Wilson, H. N., Macdonald, E. K., Mera, C., & Reisch, L. (2023). Policy for sustainable entrepreneurship: A crowdsourced framework. *Journal of Cleaner Production*, 383, 135234. <https://doi.org/10.1016/j.jclepro.2022.135234>
- Zapata-Cantu, L., & González, F. (2021). Challenges for innovation and sustainable development in Latin America: The significance of institutions and human capital. *Sustainability*, 13(7), 4077. <https://doi.org/10.3390/su13074077>
- Zhao, K. (2021). Sample representation in the social sciences. *Synthese*, 198(10), 9097–9115. <https://doi.org/10.1007/s11229-020-02621-3>