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Entrepreneurship in Ecuador: How supportive is the Ecuadorian entrepreneurial system?

Emprendimiento en Ecuador: ¿Qué tan favorable es el sistema de emprendimiento ecuatoriano?

Evelyn Calispa-Aguilar
Faculty of Business and Economics, University of Pécs, Hungary

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PALABRAS CLAVE: Emprendimiento Ecuador, Ecosistema de emprendimiento, Emprendimiento productivo

Clasificación JEL: L26, O1

ABSTRACT

This work employs data from the Global Entrepreneurship Index (GEI) from 2010-2019 to examine the features of Ecuadorian entrepreneurship system and identify its main strengths, weaknesses, and relative position compared to similar economies in the region. The findings show that the Ecuadorian entrepreneurial system is unfavourable for supporting productive entrepreneurship. Moreover, the system's overall performance is lagging by far from Chile, the most well-performing ecosystem of South America. The most severe bottlenecks for the Ecuadorian entrepreneurship system are low internationalization capacity and risk acceptance while the system strengths are a population with high start-up skills and strong networking ability.

RESUMEN

Este trabajo emplea datos de 2010-2019 del Índice Global de Emprendimiento (GEI) para examinar las características del sistema de emprendimiento ecuatoriano. Los resultados muestran que el ecosistema de emprendimiento en Ecuador es desfavorable para el emprendimiento productivo. Además, el rendimiento del sistema se encuentra significativamente rezagado en comparación a Chile, el ecosistema con más alto rendimiento en Sudamérica. Los principales obstáculos del sistema de emprendimiento ecuatoriano son la poca capacidad de internacionalización y el bajo nivel de aceptación del riesgo mientras que las fortalezas del sistema son una población con habilidades de emprendimiento y una red de contactos fuerte (networking).

1. INTRODUCTION

Productive entrepreneurship has been widely recognized as an important driver of economic growth. A growing body of literature confirms a positive correlation between high-quality entrepreneurship and the economic performance of countries, regions, and cities (Ács et al., 2008; Audretsch et al., 2015; Naudé, 2013). In this vein, the concept of entrepreneurial ecosystems (or elsewhere Systems of Entrepreneurship) and its role in enabling entrepreneurship have become a major area of interest for researchers (Malecki, 2018; Qian et al., 2013; Stam & van de Ven, 2021) and policymakers (Spigel et al., 2020)(ii. Entrepreneurship is a complex phenomenon that results from the systemic combination of several interconnected factors and actors in a place, an ecosystem. Essentially, the term entrepreneurial ecosystem (EE) is used in its broadest sense to refer to "A dynamic, institutionally embedded interaction between entrepreneurial attitudes, abilities, and aspirations, by individuals which drives the allocation of resources through the creation and operation of new ventures" (Ács et al., 2014, p.479). Therefore, entrepreneurship can only be enabled when all these constituent factors are sufficiently developed and effectively interconnected.

To date, entrepreneurial ecosystems concept has been remarkably beneficial for scholars and practitioners as it has contributed towards gaining a comprehensive understanding of how entrepreneurship is produced and can be sustained in a place (Cavallo et al., 2019). Building on the concept of entrepreneurial ecosystems, several conceptual frameworks and subsequent indexes aiming to diagnose the state and quantify the performance of entrepreneurial ecosystems at the national or regional level have been developed (e.g., Kauffman Foundation model, Global Entrepreneurship Index -GEI-, Global Entrepreneurship Monitor's National Entrepreneurship Context Index, Regional Entrepreneurship and Development Index -REDI, Stam's Model of entrepreneurial ecosytems, or the Index of Dynamic Entrepreneurship- IDE). Over the last decade, studies utilising these available models and data, have provided important information on the characteristics and performance of entrepreneurial ecosystems in several locations and special attention has been paid in exploring successful world-leading entrepreneurial ecosystems in the European Union or in the United States (Audretsch, 2019; Stam, 2015). In contrast, there is much less information about entrepreneurial ecosystems in developing economies (Cao & Shi, 2021).

This paper discusses the features, evolution, and relative performance of the Ecuadorian entrepreneurial ecosystem employing data from the GEI-2010 – 2019. The GEI has been selected due to its comprehensive index conceptualisation that emphasises the role of the individual (entrepreneur) besides the institutional enabling factors of an ecosystem. Moreover, The GEI is a offers a detailed four-level index structure that facilitates an in-depth analysis of each of the ecosystem's components performance. Additionally, the GEI is the only available historical data of entrepreneurial systems of South American countries. The central question in this paper asks how supportive is the Ecuadorian entrepreneurial system for enabling productive entrepreneurship? The aim of this paper is twofold. First, it presents a detailed analysis of the Ecuadorian national system of entrepreneurship, pointing out the main system' strengths and bottlenecks. Second, it provides a perspective about the relative position of the Ecuadorian system compared to its neighbouring countries, Colombia, and Peru and depict the gap between the Ecuadorian ecosystem and the Chilean entrepreneurial system which is the most successful case in South America. This paper begins with a brief review of the literature in entrepreneurial ecosystems. The second section synthesises the GEI methodology. The third section presents an analysis of the evolution and the status of the Ecuadoran entrepreneurial system at the sub-index and pillar level. This section also shows the relative position of the Ecuadorian entrepreneurship system compared to the Colombian, Peruvian and Chilean systems. The fourth section provides a brief policy discussion that focuses on pointing out strategies for alleviating the main bottlenecks of the Ecuadorian system. The final section brings together the conclusions.

2. LITERATURE REVIEW

2.1. Entrepreneurship, economic development, and entrepreneurial ecosystems

Entrepreneurship is increasingly acknowledged as one important driving force of economic development. Among others, innovation, job creation, productivity, technology transfer, knowledge spill-overs from research to industry and value creation have been identified as key linkages between entrepreneurship and national and regional economic growth (Audretsch &

Thurik, 2000; Huggins & Thompson, 2015; van Praag & Versloot, 2007). As a result, fostering entrepreneurial development is increasingly regarded as a way to enhance national-level or regional economic development (Spigel & Harrison, 2017). It is well stablished that entrepreneurship is an important driver of economic development, however its success depends on the availability of a suitable environment, an "ecosystem" consisting of factors and actors that interacting together enables entrepreneurship and subsequently, economic development (Ács et al., 2018; Stam & van de Ven, 2021). In this line, the entrepreneurial ecosystem concept has become a predominant conceptual metaphor to understand how entrepreneurship (in its diverse forms) occurs.

Entrepreneurial ecosystems research departs from the recognition that entrepreneurship can only be understood as the result of the dynamic interaction of individual factors and the local-global environmental context. In this vein, we recently observe a rapid rise in the number of academic articles about EE published in influential journals databases (Alvedalen & Boschma, 2017; Cavallo et al., 2019; Malecki, 2018). Building on the concept of EE, several conceptual frameworks and subsequent indexes aiming to diagnose the state and quantify the performance of entrepreneurial ecosystems at the national or regional level have been developed. The following table provides a synthesis of the most prominent definitions and conceptual frameworks for EEs which has been validated in several academic publications.

Taken together, the insights from these well-known models summarized above, provide a comprehensive view of the decisive set of components needed to form an ecosystem. From these conceptual models, we can observe that although differences in the number and type of ecosystem elements exist among models, there appears to be some agreement that what is important for entrepreneurial ecosystems to function are, on the one hand, people, a population with entrepreneurial attitudes, abilities and aspirations coupled with a supportive set of policies and regulations, finance, culture, infrastructure, human capital, networks, educational systems, market, and innovation platforms. These results reflect those of Cho et al. (2022) who also found that the EEs elements and actors have been broadly studied and nowadays are well defined.

Besides the models' structure, Table 1 also summarized the way how authors conceptualises and measures ecosystems 'complexity. Understanding and accounting for the causal ecosystem dynamics is essential

TABLE 1

DEFINITIONS AND MODELS OF ENTREPRENEURIAL ECOSYSTEMS

Authors	Definition of EE	Constituent elements	Systemic mechanism
Isenberg's model of entrepreneurial ecosystems (2011)	The entrepreneurship ecosystem consists of six domains. Actually, the entrepreneurship ecosystem consists of hundreds of specific elements that, for convenience, we group into six general domains: a conducive culture, enabling policies and leadership, availability of appropriate finance, quality human capital, venture-friendly markets for products, and a range of institutional and infrastructural supports^ (p.1)	Policy -Leadership -Government Finance Financial capital Culture - Success stories Support - Infrastructures - Support professions - Non-Government institutions Human Capital - Networks - Labour - Educational institutions Markets - Markets	"…our diagram of the ecosystem lacks causal paths; there are no arrows indicating what causes what. This is related to what Harvard economist Ricardo Hausmann calls "high bandwidth" nature of policy, namely that effective policy has to deal with many variables interacting in highly complex and specific ways." "… holistically and specifically, by impacting the entire ecosystem and stimulating virtuous circles among all elements." (Isenberg, 2011, p.8).
Kauffman Foundation ecosystem model[1]	The essence of an entrepreneurial ecosystem is its people and the culture of trust and collaboration that allows them to interact successfully. An ecosystem that allows for the fast flow of talent, information, and resources helps entrepreneurs quickly find what they need at each stage of growth. As a result, the whole is greater than the sum of its separate parts. (Entrepreneurial Ecosystem Playbook 3.0, 2019)	Elements of an ecosystem - Entrepreneurs - Talent - People and institutions with knowledge and resources - Champions and conveners - Onramps - Intersections - Stories - Culture	Not clear explanation about the systemic mechanism within an entrepreneurial ecosystem.

continúa...

TABLE 1

DEFINITIONS AND MODELS OF ENTREPRENEURIAL ECOSYSTEMS (CONTINUACIÓN)

Authors	Definition of EE	Constituent elements	Systemic mechanism
Stam's model of entrepreneurial ecosystems (2015, 2019) ↓ Entrepreneurial Ecosystem Index: EEINDEX	The entrepreneurial ecosystem as a set of interdependent actors and factors coordinated in such a way that they enable productive entrepreneurship within a particular territory (Stam & van de Ven, 2015, p.1765).	10 operational constructs: Institutional arrangements - Formal institutions - Culture - Networks Resource endowment - Physical infrastructure - Demand - Intermediaries - Talent - Knowledge - Leadership - Finance Output and outcome Entrepreneurship and value; productive entrepreneurship	"The essence of ecosystems is the interaction among its elements. This interaction is not adequately covered when an index is constructed as a sum of its elements. If we take the interactive nature of the system seriously, and the resulting nonlinear relations, the index should be constructed differently. For this, we compute an index that is not additive (E1 + E2 + …En) but multiplicative (E1*E2*…En). This leads to index values with much larger variation, as the effect of deviations of the average is now much more substantial" (Stam & van de Ven, 2019, p.826).

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TABLE 1
DEFINITIONS AND MODELS OF ENTREPRENEURIAL ECOSYSTEMS (CONTINUACIÓN)

Authors	Definition of EE	Constituent elements	Systemic mechanism
National System of entrepreneurship Ács et al. (2014)  The Global Entrepreneurship Index (GEI) and the Regional Entrepreneurship and Development Index-REDI.	A dynamic, institutionally embedded interaction between entrepreneurial attitudes, abilities, and aspirations, by individuals which drives the allocation of resources through the creation and operation of new ventures^ (p.479)	14 pillars Entrepreneurial attitudes - Opportunity perception - Startup skills - Risk acceptance - Networking - Cultural Support Entrepreneurial abilities -Opportunity startup - Technology sector - Quality of Human resources -Competition Entrepreneurial aspirations - Product innovation - Process innovation - High growth - Internationalization - Risk Capital	Penalty for Bottleneck feature All pillars are equally important and only partially substitutable.

continúa...

TABLE 1

DEFINITIONS AND MODELS OF ENTREPRENEURIAL ECOSYSTEMS (CONTINUACIÓN)

Authors	Definition of EE	Constituent elements	Systemic mechanism
Global Entrepreneurship Monitor's framework[2] ↓ National Entrepreneurship Context Index - GEM NECI	Entrepreneurship doesn't take place in a vacuum — a whole host of factors determine how easy (or difficult) it is to start up	12 entrepreneurial environment conditions (EFCs) - Financial environment related with entrepreneurship - Government concrete policies, priority, and support - Government policies bureaucracy, taxes - Government programs - Entrepreneurial level of education at Primary and Secondary - Entrepreneurial level of education at Vocational, Professional, College and University - R&D level of transference - Professional and commercial infrastructure access - Internal market dynamics - Internal market burdens - General physical infrastructures and services access - Cultural, social norms and society support	Not clear explanation about the systemic mechanism within an entrepreneurial ecosystem. Authors indicate that NECI index is calculated as the arithmetic mean of the scores obtained on the status of the 12 entrepreneurial environment conditions.

continúa...

TABLE 1

DEFINITIONS AND MODELS OF ENTREPRENEURIAL ECOSYSTEMS (CONCLUSIÓN)

Authors	Definition of EE	Constituent elements	Systemic mechanism
Kantis et al. (2021)  The Index of Dynamic Entrepreneurship -IDE.	The creation and development of a new company is the result of a process that, throughout its different stages and milestones, is affected by diverse social, cultural, political, and economic factors.	- Social Conditions - Entrepreneurial Human Capital - Culture - Educational System - Demand Conditions - STI platforms - Business Structure - Social Capital - Policies and Regulations - Financing	The authors employ geometric mean as an aggregation method. They argue that "... employing multiplication of indicators, instead of addition, allows us to consider the interactions between them. The calculation thus reflects the systemic nature of a particular phenomenon, where each of the constituent factors relates to one another" (Prodem, 2020, p.7). Moreover, the authors acknowledge that this approach is akin to the idea underlying the bottleneck method proposed by (Ács et al., 2014).

Source: Own elaboration

because entrepreneurial ecosystems are complex structures composed of a multilateral set of partners and environmental features that need to interact to materialize entrepreneurship (Adner, 2017; Roundy et al., 2018). In this regard, prominent scholars argue that the extant literature in entrepreneurial ecosystems provide lists of relevant factors characterizing successful entrepreneurial ecosystems but there is a latent need for an empirical validation of a causal relation between these elements (Alvedalen & Boschma, 2017). Therefore, research on entrepreneurial ecosystems would greatly benefit from further empirical understanding of the causal effects of EEs factors on productive entrepreneurship. Failing that, research on entrepreneurial ecosystem risks becoming only in a simple description of successful territories without the possibility of generalizing findings (Nicotra et al., 2018).

2.2. The developmental state of Ecuador

Ecuador is an upper-middle-income country (The World Bank, 2021) located in the north part of South America. Ecuador's total area is 283,560 km² and, its population by 2021 is 17.45 million inhabitants. Perhaps, the most important milestone for the economic development of Ecuador during the 2007-2017 decade was the simultaneous improvement of the Gross domestic product (GDP) per capita, improvement in the Total Factor Productivity level and the decrease of the GINI index. By 2007, the GDP per capita in Ecuador was 3567 USD while by 2018 this amount was almost duplicated to 6344 USD (The World Bank, 2021b). In the same period, the Gini Index decreased by 7.5 points. Contrastingly, since from 2017, economic growth and human development in the country remain stagnated while inequality increases as well (Table 2). Ecuadorian economy is mainly dependent on crude oil production. However, besides oil extraction, Ecuadorian economy is diversified. Ecuadorian top five components of GDP by 2020 were manufacturing, construction industry, commerce, education, social and health services and agriculture, livestock, hunting and forestry (Central Bank of Ecuador, 2021).

TABLE 2
KEY DEVELOPMENT INDICATORS, ECUADOR 2007-2020

Year	GDP per capita	Gini Index 0-1	TFP 0-1	HDI 0-1
2007	3567	0.522	0.412	0.695
2010	4633	0.487	0.397	0.716
2014	6377	0.450	0.455	0.750
2017	6213	0.447	0.432	0.757
2019	6222	0.457	0.428	0.759
2020	5600	0.454	-	0.759

Source: The World Bank, 2021, United Nations Development Programme, 2021, University of Groningen and University of California, Davis, 2021

Notes. GDP per capita in current USD. Gini index scale: ranges from 0 to 1, with 0 representing perfect equality and 1 representing perfect inequality. Human development Index HDI scale: 0 and 1, with 1.0 being the highest possible human development. TFP = Total Factor Productivity Level at Current Purchasing Power Parities.

3. METHODOLOGY

3.1. The Global Entrepreneurship Index (GEI) methodology

The GEI is a composite index that measures the health and quality of an entrepreneurial ecosystem by the using a combination of individual and institutional national-level data. The GEI model was build based on the National Systems of Entrepreneurship concept of Ács et al. (2014). A National Systems of Entrepreneurship consist of a set of elements arranged into three building blocks namely entrepreneurial attitudes (ATT), entrepreneurial abilities (ABT), and entrepreneurial aspirations (ASP). The Entrepreneurial attitudes block measure the perception of a country or region's population about entrepreneurship. In other words, this sub index shows the extent to which entrepreneurship is a socially accepted and respected occupation. Entrepreneurial abilities measure the capacity and skills of the entrepreneurs to start up and how the institutional context enables these startup opportunities. Finally, entrepreneurial aspirations capture the potential of entrepreneurs to innovate and grow and how the institutional context supports such high grow possibilities. The GEI defines country-level entrepreneurial ecosystem

as “the dynamic, institutionally embedded interaction between entrepreneurial attitudes, entrepreneurial abilities, and entrepreneurial aspirations by individuals, which drives the allocation of resources through the creation and operation of new ventures.” (Ács et al., 2019, p.3).

Importantly, the GEI emphasises that Systems of Entrepreneurship are driven by individuals, with institutions regulating who acts and the outcomes of individual action (Ács et al., 2014) and consequently, the index is calculated including data from both, **individual** (e.g., personality, psychological traits, of the entrepreneur) and **contextual** (e.g., physical, socio-economic, and political environment) factors. Regarding, the index structure, the GEI provides values at four levels: overall index value, sub-indices values (entrepreneurial abilities, entrepreneurial attitudes, entrepreneurial aspirations), at the pillar level (14 constituent pillars) and at the variable level. This feature is advantageous for policymaking because it allows in-depth understanding of the characteristics of each component of the ecosystem.

Furthermore, the GEI is one of the few available analytical tools that offers a special methodology to reflect the systemic perspective of the entrepreneurship ecosystem, by applying the so-called Penalty of Bottleneck methodology (PfB). It implies that, in a national system of entrepreneurship, all pillars are equally necessary, and therefore pillars are only partially replaceable with one another. For instance, low performance in product innovation capacity cannot be simply compensated by an increasing performance in education or cultural support. In this sense, “stable and efficient configurations are those that are balanced”. Under the PfB logic, low performing pillar are considered bottleneck factors and they may hold back the whole systems performance. Consequently, policy efforts should aim to alleviate bottlenecks *first*. Finally, the GEI has been recalculated yearly using up-to-date data from more than 120 countries, including most of South American countries. Therefore, using GEI data allows researchers to measure and understand not only the current state, but the evolution of the national-level systems of entrepreneurship of a given country.

The GEI score is expressed by a number between 0 and 100, with 100 equalling the most supportive and efficient entrepreneurial environment. As presented in Table 3, the GEI is a four-level index, and it provides scores at the GEI super index, 3 sub-indices level, 14 pillar level and 28 variable level. One of the most important levels for analysis is the pillar level. Each of the pillars is composed of both an individual and an institutional variable.

TABLE 3
THE STRUCTURE OF THE GLOBAL ENTREPRENEURSHIP INDEX (GEI)

	Sub-indexes	Pillars	Variables (ind./inst.)
GLOBAL ENTREPRENEURSHIP INDEX	ATTITUDES SUB-INDEX	OPPORTUNITY PERCEPTION	Opportunity recognition
			Freedom
		STARTUP SKILLS	Skill perception
			Education
		RISK ACCEPTANCE	Risk perception
			Country risk
		NETWORKING	Know entrepreneur
			Agglomeration
		CULTURAL SUPPORT	Career status
			Corruption
	ABILITIES SUB-INDEX	OPPORTUNITY STARTUP	Opportunity motivation
			Governance
		TECHNOLOGY ADOPTION	Technology level
			Technology absorption
		HUMAN CAPITAL	Educational level
			Labor market
		COMPETITION	Competitors
			Competitiveness
	ASPIRATION SUB-INDEX	PRODUCT INNOVATION	New product
			Technology transfer
		PROCESS INNOVATION	New technology
			Science
		HIGH GROWTH	Gazelle
			Finance and strategy
		INTERNATIONALIZATION	Export
			Economic complexity
		RISK CAPITAL	Informal investment
			Depth of capital market

Note. Individual variables are marked in white while institutional ones are marked in grey background.

Source : Ács et al., 2019

For this study, the national entrepreneurship system from Colombia and Peru were selected to be compared with the Ecuadorian entrepreneurial

ecosystem since these countries share a very similar economic profile. Ecuador, Colombia, and Peru are upper-middle-income countries and, their GDP per capita by 2020 was 5600 USD, 5332 USD and 6126 USD respectively (The World Bank, 2021). Chile, on the other hand, has been selected as a regional benchmark.

3.2. Data

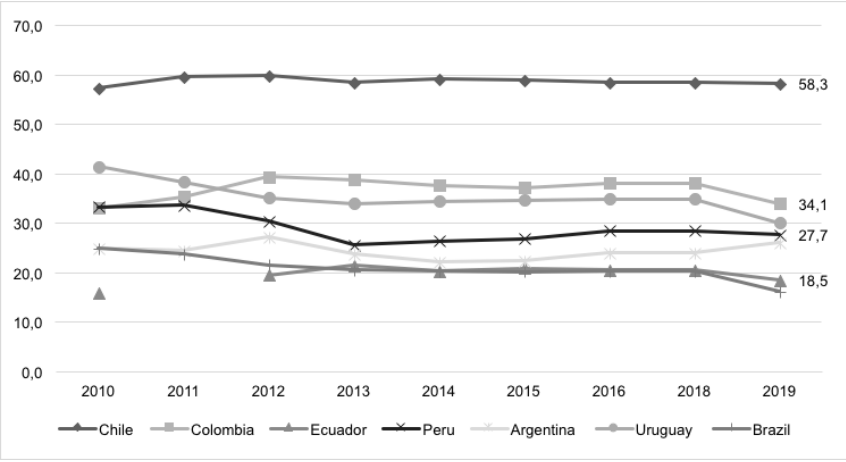
The data that support the findings of this study are openly available in the GEDI database[1]

4. THE ECUADORIAN NATIONAL SYSTEM OF ENTREPRENEURSHIP

The GEI super index score shows that, overall, the Ecuadorian entrepreneurial ecosystem is still not supportive of entrepreneurship. The GEI aggregated scores have remained -relatively- low since 2010. A fast catch-up and a significant improvement of the systems' performance were observed from 2010 to 2013. However, from 2013-2019 the scores steadily declined. As observed in Figure 1, Ecuadorian entrepreneur system is among the weakest South America. Its neighbouring countries, Colombia and Peru performs better than Ecuador. It can be observed that Chile is the best performing ecosystems in South America. Chile performs better than all the other countries in the regions and the differences are significant. Historically, Chile average GEI scores are around 57/100 while Ecuador, Colombia, Peru, Argentina, Brazil, and Uruguay have historically stayed under 40 points scores. Particularly, there is a significant gap (39.8 points difference) between Ecuador and Chile.

1 https://thegedi.org/datasets/

FIGURE 1
SOUTH AMERICAN COUNTRIES' GEI SCORES 2010-2019



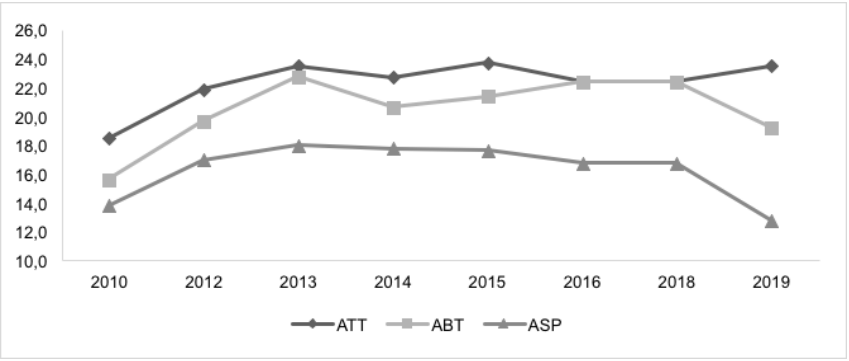
Note. Figure created by the author based on "GEI 2006-2016 Dataset" by Szerb L, 2018. The data for GEI scores 2018 are from "The Global Entrepreneurship Index 2018" by Ács Z, Szerb L, and Lloyd A, 2018. The data for GEI scores 2019 are from "The Global Entrepreneurship Index 2019" by Ács et al., 2019.

Source: Own elaboration.

4.1 The GEI sub-indices in Ecuador

Analysis at the sub-index level allows us to get a more precise picture of the entrepreneurial profile of the country. As can be seen from the figure below, there was an important overall improvement of +5.1 points in entrepreneurial attitudes scores from 18.4 in 2010 to 23.5 in 2017. Entrepreneurial abilities showed a significant improvement from 2010 (score 15.6) to 2013 (score 22.7). Entrepreneurial aspirations scores are the lowest performing sub index. Although it showed a slight improvement from 2010 to 2013, aspirations' score by 2019 is lower than it was in 2010.

FIGURE 2
GEI SUB-INDICES ECUADOR 2010-2019



Source: own elaboration based on the Global Entrepreneurship Index data.

4.2 The Ecuadorian ecosystem's pillar level configuration

At the pillar level, the scores vary between 0.03 out of 1 at the low end, and 0.49 out of 1 at the high end (Table 4). Pillar level values evidence that the most severe bottleneck in the Ecuadorian entrepreneurial ecosystem is Internationalization - measured by the entrepreneurs' export capacity and the country economic complexity -. A low level of "internationalization" demonstrates the limited capacity of Ecuadorian entrepreneurs to export their products. An overall low sub-index score in entrepreneurial aspirations suggests a generalized low exporting potential and a lack of ability to produce complex products among Ecuadorian entrepreneurs. One explanation for low growth aspirations can be that current entrepreneurial activity in Ecuador seems to be concentrated on small traditional trade or services businesses rather than on high-performance ventures. Conversely, the strength of the system is "start-up skills" which is measured by a combination of indicators for individual "skill perception" and "Education level" (tertiary education*quality of education). The increasing rate of participation of the population in education since 2010 (see. UNESCO, 2020) could explain the trend start-up skills improvement in Ecuador.

TABLE 4
GEI PILLARS' SCORES FOR ECUADOR, 2019

GEI 2019 18.5	**Entrepreneurial Attitudes**	23.5	Entrepreneurial Abilities	19.22	Entrepreneurial Aspirations	12.8
	Opportunity Perception	0.258	Opportunity Startup	0.199	Product Innovation	0.131
	Start-up skills	0.487	Technology Absorption	0.176	Process Innovation	0.135
	Risk Acceptance	0.072	Human Capital	0.202	High Growth	0.110
	Networking	0.358	Competition	0.248	Internationalization	0.035
	Cultural Support	0.168			Risk Capital	0.265

Source: own elaboration based on the Global Entrepreneurship Index data 2019.

Pillars are calculated by combining one individual and one institutional variable. An interesting perspective is to have a look of the overall individual and institutional variables' average. As summarized in the table below, for all the four countries, the contribution of people, -the individual aspect of the ecosystem- for supporting entrepreneurship is superior to the institutional-related elements. Balanced scores between individual and institutional variables (as the case of Chile) are appropriate because this shows that both, people, and institutions are equally able to support productive entrepreneurship. As opposite to significantly unbalanced overall scores such in the case of Ecuador and Colombia (18 points difference) that suggests that although the population might have the necessary abilities, positive attitudes towards entrepreneurship, and strong growth aspirations, they face a particular adverse institutional environment for starting a business.

TABLE 5
INDIVIDUAL AND INSTITUTIONAL GEI VARIABLES' SCORES FOR ECUADOR, COLOMBIA, PERU, AND CHILE, 2018

Ecuador

20%	
Individual score: entrepreneurial qualities of the people in the ecosystem	Institutional score: quality of the institutions that support entrepreneurship
54%	36%

Colombia

38%	
Individual score: entrepreneurial qualities of the people in the ecosystem	Institutional score: quality of the institutions that support entrepreneurship
68%	50%

Peru

28%	
Individual score: entrepreneurial qualities of the people in the ecosystem	Institutional score: quality of the institutions that support entrepreneurship
59%	47%

Chile

59%	
Individual score: entrepreneurial qualities of the people in the ecosystem	Institutional score: quality of the institutions that support entrepreneurship
76%	69%

Scores

0% 100%

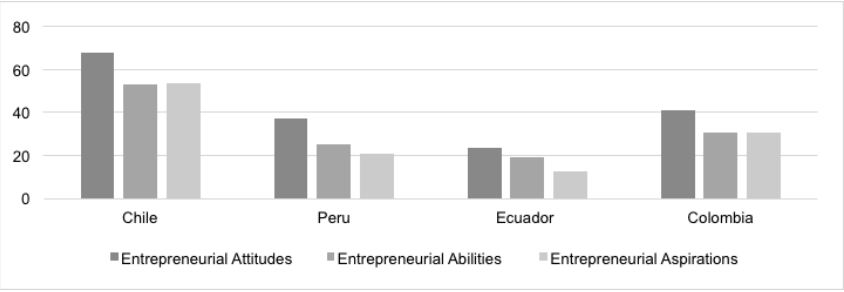
Source: created by the author based on *Ács et al.* (2018).

4.3 Ecuador, Colombia and Peru and Chile ecosystems compared at the subindices and pillar level.

In this section, the performance of each of the 14 pillars of the Ecuadorian, Colombian, Peruvian, and Chilean entrepreneurial systems are compared. A closer examination of the subcomponents of GEI show that these countries are characterized by high entrepreneurial attitudes and

lower levels of entrepreneurial aspirations. As shown in Figure 3, Ecuador and Peru reached lower than 21 points in entrepreneurial aspirations. This indicates an unbalanced configuration of ecosystems where people seem to have sufficient entrepreneurial skills and ability to recognize and undertake entrepreneurial opportunities, but they lack the qualifications and institutional support to sustain and expand their businesses. Conversely, Chile and Colombia show a relatively more balanced configuration, where attitudes are high, and abilities and aspirations are developed at the same level.

FIGURE 3
GEI SUB-INDICES FOR SOUTH AMERICAN COUNTRIES 2019



Note. Figure created by the author based on "The Global Entrepreneurship Index 2019" by Ács et al., 2019.

Source: Own elaboration

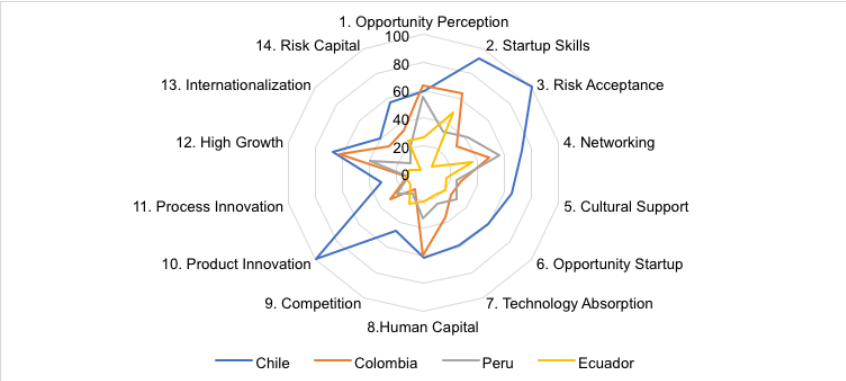
Scores at the pillar level offer a more detailed picture of the configuration of the ecosystem of the selected countries. As observed in the figure below, the Ecuadorian and Peruvian entrepreneurial systems perform at around the same level (both within the 50% area). Ecuador and Peru perform similarly in "start-up skills", "networking", "cultural support", "opportunity start-up", "technology absorption", "human capital", "product innovation", "process innovation", and "internationalization". Conversely, big differences can be observed among these two countries in "opportunity perception", "risk acceptance", and "high growth". Peruvian ecosystem is more supportive than the Ecuadorian ecosystem in the latter pillars. Colombia's system performs slightly better than the Ecuadorian and Peruvian reaching much better performance in opportunity perception, human capital, and high growth pillars. Colombia weakest pillar is "competition" which score is lower than Ecuador

and Peru. It is important to note that the overall configuration of scores among pillars for the four selected countries is not balanced, meaning that, there are big variations in the performance of the pillars. Chile shows some level of balance among the pillars belonging to the Attitudes and abilities sub-indices. However, aspiration-related pillars are uneven.

There is a significant gap in performance between Ecuador, Peru, Colombia, and Chile. The Ecuadorian and Peruvian entrepreneurial systems' performance is lagging by far compared to Chile (GEI 2017-2018= 58.4). Chile shows exceptional performance in "entrepreneurial attitudes" (pillars 1 to 5) and in the "product innovation" pillar. Conversely, "internationalization" and "process innovation" are the main bottlenecks of the Chilean system.

FIGURE 4

GEI PILLAR LEVEL SCORES FOR ECUADOR, COLOMBIA, PERU, AND CHILE, 2019



Source: own elaboration based on the Global Entrepreneurship Index data 2019.

5. DISCUSSION AND POLICY IMPLICATIONS

The present study was designed to define how supportive is the Ecuadorian entrepreneurial system for enabling productive entrepreneurship. Employing data from the GEI 2010-2019, this study found that the Ecuadorian system of entrepreneurship is still unfavourable for supporting productive entrepreneurship (GEI score of 18.5/100 in 2019). One important feature of

GEI is that this index provides a handy basis for developing a framework for a country-level entrepreneurship policy approach. The Penalty for Bottleneck methodology employed in GEI suggests that significant improvement can only be achieved if the weakest link – the lowest scoring pillar–, which constrains the performance of the system, is strengthened first. Therefore, alleviating the first bottleneck pillar will have a greater effect on improving the sub-index and ultimately the entire GEI index.

The most severe bottleneck for the Ecuadorian entrepreneur system is "internationalization". Therefore, policy actions must start from here. This results seem to be consistent with other research which found that most developing countries in Eastern Europe, Latin America or Africa, do not have a sufficient domestic market to support all high growth ventures dedicated exclusively to serving local markets (Lecuna et al., 2017) and thus export orientation of ventures becomes a crucial determinant for firm growth. This is in line with earlier studies about the determinants of high growth firms that suggest that the market orientation of the firm may also influence its growth performance and an orientation towards international markets combined with prior international experience for the entrepreneur enhances the firm growth performance (Audretsch, 2012). Latin America has the lowest rate of exporter entrepreneurs and only few companies enter export markets in contrast to Asia, Middle East or even Africa (Lederman et al., 2013). Low exporting capacity is particularly evident in Ecuador with most of entrepreneurs serving only the local market (Arteaga & Lasio, 2009). In this regard, policy efforts could aim, for instance, to identify the determinants of internationalization of new firms and provide incentives for the creation and improvement of these kind of features. Among other tools, this can be achieved through market research and subsidies to businesses in specific economic sectors (tailor-made solutions). Empirical research demonstrates that certain factors related to the individual and the national context influence the likelihood of early firm internationalizing (Amorós et al., 2016; Li, 2018). Therefore, a proper diagnosis of the national and regional driving factors for internationalization of firms, coupled with subsequent governmental support may affect positively entrepreneurs' ability to export. In this regard, Ács et al. (2018) suggest that policymakers should aim to facilitate the interaction of individuals in increasingly complex networks in order to make products.

The second focus of intervention in the Ecuadorian case is in increasing risk acceptance (measured by the combination of the population's fear of

failure and the country's political, financial, and environmental risk). However, this is not an easy task since attitude towards risk is a complex, feature specific to the population. Attitude towards risk is in some cases associated with individual factors such as gender, education level, and entrepreneurial skills perception (Sepúlveda & Bonilla, 2011). In this context, efficient policies could, for instance, trace the character of the "fear of failure" measurement in the country and design specific supportive policies considering the differential drivers and effects of fear on risk perception (e.g., provide financial information and support to women entrepreneurs). Moreover, risk perception could decrease by providing accurate and understandable financial information for the population (for example, improving access to country risk indicators). Ács et al. (2018) add that policy efforts to improve risk perception can focus on three aspects. First, improving institutional and regulatory stability and ensure absence of conflict. Second, creating simple and consistent personal and corporate bankruptcy processes. Third, changing the communication around social safety nets to highlight the fact that they are a great resource for potential entrepreneurs because they mitigate damages for those who fail.

Finally, a smaller effort is required to improve the high growth aspirations of entrepreneurs. This pillar could be improved simultaneously with internationalization policies. However, specific policy interventions such as setting a favourable taxing scheme for new firms growing at a fast rate or providing financial support for existing business' sophistication could contribute to overcoming this specific bottleneck. In this regard, it is important that policymakers consider that fast growth requires special funding capabilities and opportunities and thus financial access plays an essential role in firms' likelihood of growth, especially when the local credit conditions are weak (Brown & Earle, 2017; Krasniqi & Desai, 2016; Moreno & Casillas, 2007). Contrastingly, South American entrepreneurs face diverse and complex barriers in access to finance. On the one hand, in Latin America, access to bank credit is in general limited and entrepreneurs face high transaction costs and barriers due to the newness of businesses. Consequently, there is a more negative attitude of Latin American entrepreneurs toward local financial institutions due to the generalised perception that the supply of credit is inadequate and support information is not abundant (García Pérez De Lema et al., 2013; Kantis et al., 2005). Nevertheless, in Latin America, banking system is still a relevant source of funding for firms (including high-growth entrepreneurs) because angel investor environment, and to a

lesser extent the incubation and venture capital environment, are not well developed in the region either (Llisterri & García-Alba, 2008). Therefore, efforts from policymakers to reduce the barriers to obtaining equity financing would be of a great impact (Ács et al., 2018).

6. CONCLUSIONS

This paper aimed to examine the Ecuadorian National system of entrepreneurship using the Global Entrepreneurship Index (GEI). This study is of great significance as it provides a detailed synopsis of the features of the Ecuadorian entrepreneurship system. We argue that there is no single set of steps to follow to improve an ecosystem's performance. Instead, the allocation of policy resources should be designed to address the specific contextual needs of the country's entrepreneurial system. Entrepreneurship policy should be drawn on a proper diagnosis of the features of the national entrepreneurship system and policy interventions should therefore be designed according to these specificities. One of the more significant findings to emerge from this study is that the Ecuadorian system of entrepreneurship is still unfavourable for supporting productive entrepreneurship. Historical overall GEI scores for Ecuador remain low within a range of 15.9 to 21.3 points out of 100. Consequently, Ecuador ranks among the countries with the least supportive environments for productive entrepreneurship in South America.

A closer examination at the GEI pillar level showed that the main strength of the Ecuadorian entrepreneurial system is the "start-up skills" pillar - which is measured by the combination of indicators about "entrepreneurial skills perception" and "education level"-. High entrepreneurial skill perception means that the Ecuadorian adult population perceive themselves as skilled to start a business. Moreover, besides self-perception of entrepreneurial skills, the Ecuadorian population is also, relatively, well educated (high gross enrolment ratio in tertiary education). The second strongest pillar is "networking" which shows that a big portion of the population knows someone who started a business in the past 2 years. Such strong individual connection among entrepreneurs is supported by a high level of agglomeration (country urbanization levels * quality of the domestic and international transport infrastructure) that facilitates active entrepreneurs' interaction and their possibility to access opportunities and mobilize resources. The bottleneck pillars for the Ecuadorian

entrepreneurial ecosystem are “internationalization” and “risk acceptance”. Therefore, policy efforts are required to first address these critical areas that hold back the whole ecosystem’s efficiency. Interestingly, in the Ecuadorian system, on average, individual variables are performing considerably better than institutional variables. It suggests that although the population has overall the necessary abilities, positive attitudes towards entrepreneurship, and strong growth aspirations, they face a particular adverse institutional environment for startup.

Although the study has successfully depicted the main features of the Ecuadorian national-level entrepreneurship system, it has certain limitations in terms of the relatively outdated dataset employed. Nevertheless, we found that the results from this study are similar to those recently reported by Wong (2022). Further research should be undertaken to explore Ecuadorian entrepreneurial ecosystems at the sub-national level. Current global research strongly suggests that although a national-level focus can provide valuable information about EEs characteristics, there are several factors that could define EEs differently at the regional and local level (Mack & Mayer, 2016; Muñoz et al., 2020; Qian et al., 2013; Spigel, 2017). In this regard, recent research in entrepreneurship and EEs from a regional perspective in Ecuador, confirm regional particularities that could be usefully explored in further research (Calispa-Aguilar, 2022; Hernandez et al., 2021).

REFERENCES

ÁCS Z., AUTIO, E., & SZERB, L. (2014). «National Systems of Entrepreneurship: Measurement issues and policy implications». *Research Policy*, *43*(3), 476–494. https://doi.org/10.1016/j.respol.2013.08.016

ÁCS Z., DESAI, S., & HESSELS, J. (2008). «Entrepreneurship, economic development and institutions». *Small Business Economics*, *31*(3), 219–234. https://doi.org/10.1007/s11187-008-9135-9

ÁCS Z., ESTRIN, S., MICKIEWICZ, T., & SZERB, L. (2018). «Entrepreneurship, institutional economics, and economic growth: an ecosystem perspective». *Small Business Economics*, *51*(2), 501–514.

ÁCS, Z., SZERB, L., LAFUENTE, E., & MÁRKUS, G. (2019). «*The Global Entrepreneurship Index 2019"*.

ÁCS, Z., SZERB, L., & LLOYD, A. (2018). «The Global Enterpreneuship Index 2018». In *The Global Enterpreneuship Index 2018*.

ADNER, R. (2017). "Ecosystem as Structure: An Actionable Construct for Strategy. *Journal of Management*, *43*(1), 39–58. https://doi.org/10.1177/0149206316678451

ALVEDALEN, J., & BOSCHMA, R. (2017). A critical review of entrepreneurial ecosystems research: towards a future research agenda. *European Planning Studies*, *25*(6), 887–903.

AMORÓS, J. E., BASCO, R., & ROMANÍ, G. (2016). "Determinants of early internationalization of new firms: the case of Chile". *International Entrepreneurship and Management Journal*, *12*(1), 283–307. https://doi.org/10.1007/s11365-014-0343-2

ARTEAGA, M. E., & LASIO, V. (2009). "Empresas dinámicas en Ecuador: factores de éxito y competencias de sus fundadores = Dynamic businesses in Ecuador: Success factors and entrepreneurial competencies". *Revista Latinoamericana de Administración*, *42*, 49–67.

AUDRETSCH, D. (2012). "Determinants of High-Growth Entrepreneurship". In *International Workshop on ~~"~~High-growth firms: local policies and local determinants~~"~~*.

AUDRETSCH, D. B. (2019). Have we oversold the Silicon Valley model of entrepreneurship ? *Small Business Economics*. https://doi.org/10.1007/s11187-019-00272-4

AUDRETSCH, D. B., & THURIK, A. R. (2000). "Capitalism and democracy in the 21st century: From the managed to the entrepreneurial economy". *Journal of Evolutionary Economics*, *10*(1–2), 17–34. https://doi.org/10.1007/s001910050003

AUDRETSCH, D., BELITSKI, M., & DESAI, S. (2015). "Entrepreneurship and economic development in cities". *Annals of Regional Science*, *55*(1), 33–60. https://doi.org/10.1007/s00168-015-0685-x

BROWN, J. D., & EARLE, J. S. (2017). "Finance and Growth at the Firm Level: Evidence from SBA Loans". *The Journal of Finance*, *72*(3), 1039–1080. https://doi.org/10.1111/jofi.12492

CALISPA-AGUILAR, E. (2022). "Regional systems of entrepreneurship in 2017–2018: An empirical study in selected regions of South America". *Regional Statistics*, *12*(1), 51–76. https://doi.org/10.15196/RS120103

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., GHEZZI, A., & BALOCCO, R. (2019). "Entrepreneurial ecosystem research: present debates and future directions". *International Entrepreneurship and Management Journal*, *15*(4), 1291–1321. https://doi.org/10.1007/s11365-018-0526-3

CHO, D. S., BUCIUNI, G., & RYAN, P. (2022). “Evolutionary entrepreneurial ecosystems : a research pathway”. *Small Business Economics*, *58*, 1865–1883.

GARCÍA PÉREZ DE LEMA, D., ZULUAGA, B. B., & GUIJARRO, A. M. (2013). “Financiación de la innovación en las Mipyme iberoamericanas = Financing of innovation in ibero-american Msmes”. *Estudios Gerenciales*, *29*(29), 12–16.

HERNANDEZ, P., RAMÍREZ, G., & PEÑAHERRERA, S. (2021). “Empowerment and female entrepreneurship, a rural-urban comparison, Canton Latacunga, Cotopaxi Province”. *Revista de Estudios Regionales*, 173–199.

HUGGINS, R., & THOMPSON, P. (2015). “Entrepreneurship, innovation and regional growth: a network theory”. *Small Business Economics*, *45*(1), 103–128. https://doi.org/10.1007/s11187-015-9643-3

ISENBERG, D. J. (2011). “The Entrepreneurship Ecosystem Strategy as a New Paradigm for Economic Policy: Principles for Cultivating Entrepreneurships”. In *Presentation at the Institute of International and European Affairs* (Vol. 1, Issue 781, pp. 1–13).

KANTIS, H., ANGELELLI, P., & MOORI-KOENIG, V. (2005). “*Developing entrepreneurship : experience in Latin America and worldwide”*.

KANTIS, H., FEDERICO, J., & IBARRA-GARCÍA, S. (2021). “*IDE Index of Dynamic Entrepreneurship 2021”*.

KRASNIQI, B. A., & DESAI, S. (2016). “Institutional drivers of high-growth firms: country-level evidence from 26 transition economies”. *Small Business Economics*, *47*(4), 1075–1094. https://doi.org/10.1007/s11187-016-9736-7

LECUNA, A., COHEN, B., & CHAVEZ, R. (2017). “Characteristics of high-growth entrepreneurs in Latin America”. *International Entrepreneurship and Management Journal*, *13*(1), 141–159. https://doi.org/10.1007/s11365-016-0402-y

LEDERMAN, D., MESSINA, J., PIENKNAGURA, S., & RIGOLINI, J. (2013). “Latin American Entrepreneurs:Many Firms but Little Innovation”. In *Latin American Entrepreneurs:Many Firms but Little Innovation*. https://doi.org/10.1596/9781464800122

LI, T. (2018). “Internationalisation and its determinants:A hierarchical approach”. *International Business Review*, *27*(4), 867–876. https://doi.org/10.1016/j.ibusrev.2018.01.009

LLISTERRI, J. J., & GARCÍA-ALBA, J. (2008). “*High-Growth SMEs in Latin American Emerging Economies”* (Issue May).

MACK, E., & MAYER, H. (2016). “The evolutionary dynamics of entrepreneurialh ecosystems”. *Urban Studies*, *53*(10), 2118–2133. https://doi.org/10.1177/0042098015586547

MALECKI, E. J. (2018). “Entrepreneurship and entrepreneurial ecosystems”. *Geography Compass*, *12*(3), 1–21. https://doi.org/10.1111/gec3.12359

MORENO, A. M., & CASILLAS, J. C. (2007). “High-growth SMEs versus non-high-growth SMEs: a discriminant analysis”. *Entrepreneurship And Regional Development*, *19*(1), 69–88. https://doi.org/10.1080/08985620601002162

NAUDÉ, W. (2013). “Entrepreneurship and Economic Development: Theory, Evidence and Policy”. *IZA Discussion Paper*, *7507*. https://doi.org/10.2139/ssrn.2314802

NICOTRA, M., ROMANO, M., DEL GIUDICE, M., & SCHILLACI, C. E. (2018). “The causal relation between entrepreneurial ecosystem and productive entrepreneurship: a measurement framework”. *Journal of Technology Transfer*, *43*(3), 640–673. https://doi.org/10.1007/s10961-017-9628-2

QIAN, H., ACS, Z., & STOUGH, R. (2013). "Regional systems of entrepreneurship: the nexus of human capital, knowledge and new firm formation". *Journal of Economic Geography*, *13*(4), 559–587.

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.

SEPÚLVEDA, J., & BONILLA, C. (2011). "The attitude toward the risk of entrepreneurial activity : Evidence from Chile La actitud hacia el riesgo de emprender : evidencia para Chile". *Academia, Revista Latinoamericana de Administración*, *46*, 72–80.

SPIGEL, B. (2017). "The Relational Organization of Entrepreneurial Ecosystems". *Entrepreneurship: Theory and Practice*, *41*(1), 49–72. https://doi.org/10.1111/etap.12167

SPIGEL, B., & HARRISON, R. (2017). "Toward a process theory of entrepreneurial ecosystems". *Strategic Entrepreneurship Journal*, *12*(1), 151–168. https://doi.org/10.1002/sej.1268

SPIGEL, B., KITAGAWA, F., & MASON, C. (2020). "A manifesto for researching entrepreneurial ecosystems". *Local Economy*, *35*(5), 482–495. https://doi.org/10.1177/0269094220959052

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*, *June*. https://doi.org/10.1007/s11187-019-00270-6

VAN PRAAG, C. M., & VERSLOOT, P. H. (2007). "What is the value of entrepreneurship? A review of recent research". *Small Business Economics*, *29*(4), 351–382. https://doi.org/10.1007/s11187-007-9074-x

WONG, S. A. (2022). "Entrepreneurship in Ecuador. In *Entrepreneurship in South America Context, Diversity, Constraints, Opportunities and Prospects"* (p. 99).

ONLINE RESOURCES

CENTRAL BANK OF ECUADOR (2021): "Información Estadística Mensual (IEM)". Retrieved November 2, 2021, from https://contenido.bce.fin.ec/home1/estadisticas/bolmensual/IEMensual.jsp

FEDERAL RESERVE ECONOMIC DATA FRED (2021): March 10). Total Factor Productivity Level at Current Purchasing Power Parities for Ecuador. https://fred.stlouisfed.org/series/CTFPPPECA669NRUG

PRODEM. (2020). IDE Methodological annex.

THE WORLD BANK (2021): "Country and lending groups, country classification". Retrieved November 25, 2021, from https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups.

THE WORLD BANK (2021): "GDP per capita (current US$) – Ecuador.". Retrieved November 10, 2021, from https://data.worldbank.org/indicator/NY.GDP.PCAP.CD

UNITED NATIONS DEVELOPMENT PROGRAMME (2021): "Human development report – Ecuador". Retrieved November 20, 2021, from http://hdr.undp.org/en/countries/profiles/ECU