

Article

Comparative Analysis of the Determinants of Entrepreneurial Activities in the Middle East and Latin America

Irerly L. Melchor-Duran ^{1,*} and Allan Villegas-Mateos ² 

¹ Escuela de Ciencias Económicas y Empresariales, Universidad Panamericana, Josemaría Escrivá de Balaguer 101, Aguascalientes 20296, Mexico

² HEC Paris, Wadi Msheireb Street -935, Building P08, Zone -03, Msheireb Downtown, Doha 247433, Qatar; villegas@hec.fr

* Correspondence: imelchor@up.edu.mx

Abstract: This study aims to contribute to advancing the understanding of entrepreneurial ecosystems, Latin American development, and the evolution and future perspectives of the Middle East. It used a cross-sectional research design and quantitative data with 750 observations from the Global Entrepreneurship Monitor, specifically the National Experts Survey and the Adult Population Survey. The results were analyzed by the Partial Least Squares Technique (PLS-SEM) by grouping countries into two balanced samples of underexplored regions: the Middle East and Latin America. The two regions, Latin America and the Middle East, have diverse entrepreneurial ecosystems; each condition impacts entrepreneurial activities in different ways. In Latin America, the most significant variable is “Physical Infrastructure”, while in the Middle East, the most significant determinants are “Commercial and Professional Infrastructure” and “Entrepreneurship Culture”. This study shows that to support entrepreneurial activities, each region requires different settings for their entrepreneurial ecosystems. It contributes to the literature on regional entrepreneurial ecosystems and to less explored regions to advance our understanding, which will drive better policies and actions.

Keywords: entrepreneurial ecosystem; emerging economies; Latin America; Middle East; Global Entrepreneurship Monitor



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1. Introduction

Entrepreneurship has become important for fostering job creation, innovation flourishing, and economic growth, and studies have covered the topic extensively [1]; in other words, entrepreneurship is the economic growth engine for countries [2]. Entrepreneurship has also been recognized as the main factor for the sustainable development of nations; entrepreneurship is an arduous path only chosen by those who have a high level of risk taking. On this path, entrepreneurship requires an entrepreneurial ecosystem that welcomes this type of thinking and eliminates the barriers on the path as much as possible [3]. Entrepreneurial ecosystems (EEs) are communities consisting of many independent actors that can play a key role in the development and level of entrepreneurial activity for a given geography [4]. Some studies have focused on understanding the EE determinants of entrepreneurial activities in different socioeconomic contexts [4–6]. In these studies, Government Policy, R&D Transfer, Commercial and Professional Infrastructure, Physical Infrastructure, and Cultural and Social Norms are constantly highlighted as the main EEs’ determinants of entrepreneurial activity. However, there are two regions that are particularly less explored in the EEs’ literature addressing this topic: the Middle East and Latin America.

Research papers on entrepreneurship in the Middle East region demonstrate increasing interest in this area of study, with the potential to stimulate and propel future economic development and growth [1]. Within the Middle East region, the states (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates) of the Gulf Cooperation Council

(GCC) have experienced significant developmental and economic advancement since the discovery of oil in the 1950s [7], and these states share common attributes with the rest of the Middle Eastern countries, such as population demographics, religion, culture, type of government, etc. In Latin America, research on entrepreneurial ecosystems is constrained and typically relies on reports of best practices, policy summaries, and position papers issued by international organizations [8–12]. Both regions are composed of developing countries with emerging economies. Studying and comparing these regions becomes relevant because conducting research on emerging economies helps to fill the gap in the literature about this regional level of analysis [13].

Researchers of EEs consider that some regions require a higher level of analysis and measures given that EEs are a spatial concept [3,14,15]. Additionally, the EEs literature has been criticized for its poor clarity concerning the level of analysis [16], but more recently, the trend shows an emerging interest in studies conducted at the regional levels [11,17–22], as well as at the city levels [23–26]. Sternberg et al. [27] argued that studying EEs at the sub-national (meso) level of regions is the most appropriate spatial level to identify and measure EEs, as the evidence in the literature favors entrepreneurship as being primarily a regional (or local) event. While Villegas-Mateos [11] argued that analyzing EEs by cities can be an impossible task in terms of research budget and time, hence, he studied regions in Latin America. Particularly for this research article, the authors followed the regional approach, aiming to contribute to advancing the understanding of EEs' determinants of entrepreneurial activities, Latin American development [28], the evolution and future perspectives of the Middle East [29], and studying Asian entrepreneurial ecosystems and giving a multiscalar perspective [30].

To address this issue, the paper is structured in four parts: (1) a literature review on entrepreneurial ecosystems and the determinants of entrepreneurship in the Middle East and Latin America; (2) a detailed description of the methodology employed for the data collection and statistical analysis; (3) the results and discussion of the findings; and (4) a conclusion that includes the study contributions, research limitations, and future research guidelines.

Finally, the purpose of this study is to understand the variables that impact early stage entrepreneurial activity in the Latin American and Middle Eastern entrepreneurial ecosystems. The main findings indicate that in Latin America, the most significant variable that positively impacts early stage entrepreneurial activity is "Physical Infrastructure", while in the Middle East, the most significant positive determinants are "Commercial and Professional Infrastructure" and "Entrepreneurship Culture". This study shows that to support entrepreneurial activities, each region requires different settings for their entrepreneurial ecosystems.

2. Literature Review

2.1. Entrepreneurial Ecosystems

The entrepreneurial ecosystems (EEs) approach offers a systematic view on how to support entrepreneurial initiatives [19]. This perspective proves advantageous for pivotal players, such as social entrepreneurs, who navigate intricate systems of interacting participants within swiftly changing landscapes [31].

In the entrepreneurship literature, the term ecosystem holds diverse implications, depending on the outcomes it seeks to assess; it can encompass policies [32], regional groups of enterprises [33], and even national entrepreneurial systems [34]. Due to its allure and adaptability, the ecosystem concept has been employed to elucidate various phenomena from multiple academic standpoints and under various descriptors, such as innovation, business, technology, platform, entrepreneurial, knowledge [35], and more recently, sustainable ecosystems [36,37]. The primary distinctions among these lie in the outputs of the ecosystem and the analytical unit associated with a particular theme, although they share the common feature of interdependent actors and factors, similar to entrepreneurial ecosystem definitions [14,16,25,38–41].

Additionally, some empirical studies about entrepreneurial ecosystems have focused on value creation at the regional level [17,19–22]. The regional entrepreneurship literature provides striking evidence that entrepreneurship is primarily a regional (or local) event [27].

Ecosystem heterogeneity affects success and explains why some ecosystems drive more than others [36]. There is the contribution of this study creating the literature suited to each region of the Middle East and Latin America with different characteristics.

2.2. Determinants of Entrepreneurship in the Middle East

As studies about EEs in the Gulf Cooperation Council (GCC) remain scarce [42,43], the scope of this study is the Middle East region. The Gulf Cooperation Council (GCC) countries in the Middle East are continuing to foster entrepreneurship and education to improve the competitiveness of the region [44]. According to Saberi and Hamdan [45], the governments of the Gulf Cooperation Council (GCC) have a strong influence on the relationship between entrepreneurship and economic growth; this region is strong in entrepreneurial investment but has low performance in technology absorption.

There are some studies performed in the Middle East zone, especially in countries like Oman, Saudi Arabia, Qatar, and Iran. For example, in the context of the Omani Entrepreneurship Ecosystem, the strongest pillars are opportunity perception, risk acceptance, networking, and opportunity start-up because there exists a high level of governance, human capital, high growth, internationalization, and risk capital; perhaps the weaker pillars are start-up skills, technology absorption, competition, and product and process innovation [46]. Also, the Omani Entrepreneurship Ecosystem has challenges such as policy development projects about entrepreneurship, more venture capital, better digital payment services, improving the positive cultural perceptions about entrepreneurship, and lack of coordination between different stakeholders [47].

In a study conducted in Iran, the entrepreneurship ecosystem has the universities as important actors because they enable knowledge transfer and education [48]. The entrepreneurship ecosystem of Saudi Arabia shows that the entrepreneurial intentions of young women and students are influenced by their perceptions of government policies and regulations, government programs, and entrepreneurship education [49,50].

Qatar is living in changing times; as an oil-based country, the government is focused on creating a more sustainable economy, investing resources and a strong leadership to accomplish it. There exists funding for startups, and Qatar has a low unemployment rate; one of the weaknesses of the entrepreneurship ecosystem is the absence of skilled human capital [51]. Although there is a big effort from the government to create a sustainable entrepreneurship ecosystem in Qatar, the results of the programs are not working because they are not designed based on the customer-centric view [52]. There also exists in Qatar the need to have more business ideas due to the lack of initiatives to foster that stage of the business creation process [43].

2.3. Determinants of Entrepreneurship in Latin America

The principal studies about entrepreneurship in Latin America are from Mexico, Brazil, Chile, and Peru; the studies of entrepreneurship in the Latin American context are few. In developing countries such as Latin American ones, the context creates a negative impact on the entrepreneurship process because of the unstable legislation, the absence of support institutions, the low level of technology transfer, limited access to capital funding, the high levels of informal entrepreneurs, and a low entrepreneurial culture [53–55]. In the case of Mexico, there exist five regions with different levels of entrepreneurship ecosystem development. The biggest region has the characteristics of a medium level of human capital and a low level of entrepreneurship; another two regions have a high level of informality [56].

In a study conducted in Brazil, it was found that the role of universities is to give resources to the entrepreneurship ecosystems, especially knowledge, but also that universities receive monetary resources for scholarships and equipment to conduct research. Finally one of the issues with this interaction between universities and entrepreneurship

ecosystems is the absence of mechanisms to connect the technology exchange between the university and entrepreneurship ecosystems [57]. There is evidence that in the sustainable entrepreneurial ecosystem of Brazil, some conditions that create favorable conditions are high rates of green areas, the interaction between actors, a high human development index, and legislation to foster investment [58].

The entrepreneurship of Popayan, Colombia, is described from the perspective of institutions that support entrepreneurial activities and the entrepreneurs. The institutions are focused on institutional articulation with different actors in the community, the development of entrepreneurial skills, and support for entrepreneurs. On the other hand, entrepreneurs are focused on the external environment to develop a sensitivity to create relationships with different actors in the ecosystem to reduce risks, be more resilient, and innovate [59]. For example, in Peru, the entrepreneurs are more connected with mentors than other actors [60]. In a study carried out in Peru on the technological entrepreneurship ecosystem, the investors are the most connected actors, while universities and public institutions are interconnected but not connected with the startups [60].

3. Hypothesis

The interaction of different elements of an entrepreneurial ecosystem facilitates or hinders entrepreneurial activity in a region. The variables from the entrepreneurial ecosystem in this study are Government Programs, Research and Development Transfer, Commercial and Professional Infrastructure, Physical Infrastructure, and Cultural and Social Norms. All these variables have a relationship with entrepreneurial activity [61,62].

3.1. Government Programs and Entrepreneurial Activities

Nowadays, it is common for governments implement public programs to help entrepreneurs or motivate people to open new businesses. These programs influence different factors such as early stage entrepreneurial activity, innovation, and help to overcome COVID-19 [61,63–65]. Pilková et al. [64] found that well-designed government programs foster entrepreneurial activity, especially in young people; such programs help entrepreneurs deal with the challenges of creating a new business, for example, with financial assistance or by facilitating the interaction between stakeholders. The government can also propose social impact projects to entrepreneurs and non-governmental organizations [66]. The government supports entrepreneurs through entrepreneurship programs because entrepreneurship projects boost the economy, reducing the unemployment rate [67].

Different studies indicate that government programs have a positive impact on entrepreneurial activity [4,68–70]. Urrutia and Marzábal [70] state that good government programs create a good economic system and environment perception for entrepreneurs, which is why they feel motivated to create a new business.

Hypothesis 1 (H1). *Government programs' condition impacts significantly and positively the total early stage activity in Latin America and the Middle East.*

3.2. Research and Development Transfer and Entrepreneurial Activities

Burhanuddin et al. [71] indicate that it is important to develop policies to convert scientific projects into business projects. Research and development transfer has been shown to have a positive impact on entrepreneurial activities [62], with universities playing an especially important role in filling the gaps of technology transfer and new business creation. We see that universities have been conducting entrepreneurial activities since 1930 due to the inventions made in engineering schools, institutionalizing the initiatives to link innovation with entrepreneurship [72]. To create innovative firms, the knowledge transfer is a key driver; then the entrepreneurial ecosystem can facilitate the knowledge that companies need, and as a result, we can see firm-level benefits [73]. A particular practice in an entrepreneurial ecosystem is programs that boost the commercialization of inventions. Hall et al. [74] indicate that projects like LEAP from Washington University in

St. Louis are models to support and promote academic entrepreneurship culture through consulting for scientific entrepreneurs. A technology transfer office acts as a broker that relates science to real-life business projects (micro level) that have the potential to impact social and economic life (macro level); that is why research and development transfer is relevant for entrepreneurial activities [75].

Hypothesis 2 (H2). *Research and Development Transfer condition impacts significantly and positively the Total Early Stage Activity in Latin America and the Middle East.*

3.3. Commercial and Professional Infrastructure and Entrepreneurial Activities

Professional and commercial support refers to suppliers and subcontractor firms that help with some processes for a company, and professional support like lawyers, accountants, and technological consultants is a favorable condition that enhances entrepreneurship at any stage. Professionals support the collaborative relationships between stakeholders, and mentors help to develop business ideas [66,76,77]. There is evidence that entrepreneurial ecosystems have more benefits with better lawyers, accountants, and other professionals [78]. The relevance of professional and commercial support is because individuals use their expertise to solve problems that entrepreneurs are facing; for example, when a professional service firm develops a digital marketing strategy for their client, a non-alcoholic beverage firm [79]. On the other hand, access to suppliers is a barrier that entrepreneurs have, and depending on the region, there exists a greater or lower barrier [80].

Hypothesis 3 (H3). *Commercial and Professional Infrastructure condition impacts significantly and positively the Total Early Stage Activity in Latin America and the Middle East.*

3.4. Physical Infrastructure and Entrepreneurial Activity

Physical infrastructure is commonly measured by the access that a region has by road, railway, flights, and households with internet, water, electricity, and sanitation facilities provided by external institutions [62,81,82]. Physical infrastructure explains 38% of the variability in economic growth [83]. Sampaio et al. [62], Khyareh et al. [84], Ghani et al. [76], and Neck et al. [85] indicate that physical infrastructure directly impacts entrepreneurship activity and high-technology entrepreneurship. Physical infrastructure is a main condition for a good entrepreneurial ecosystem and improves entrepreneurial development, especially in countries with low levels of development [81,82].

Hypothesis 4 (H4). *Physical Infrastructure condition impacts significantly and positively the Total Early Stage Activity in Latin America and the Middle East.*

3.5. Cultural and Social Norms and Entrepreneurial Activity

The culture around entrepreneurship includes values, social norms, principles, and behaviors that orient people toward certain entrepreneurial activities and make them stay involved over time [86]. Informal institutions (especially culture and norms) can help to support and foster certain activities like entrepreneurship activity [4,87]. In the same country, different regions exist, and the population of each region creates specific cultural and social norms that influence entrepreneurial activity. For example, some regions of the USA that have high amounts of immigrants from developed countries have higher levels of manifest entrepreneurship, but regions with immigrants of different nationalities have lower levels of entrepreneurship [88]. The presence of an entrepreneurship culture generates a better impact on entrepreneurship activity in rural areas, especially when there exists a culture of openness to diversity and change [89]. Kayed and Hassan [90] indicate that Muslim religious values shape a positive attitude toward entrepreneurship because entrepreneurship creates economic and financial benefits to achieve the well-being asked for by God.

Hypothesis 5 (H5). *Entrepreneurship Culture impacts significantly and positively Total Early Stage Activity in Latin America and the Middle East.*

4. Method

The study is based on data obtained from the Global Entrepreneurship Monitor (GEM) from the National Experts Survey (NES) and the Adult Population Survey (APS) collected between 2015 and 2018. The effects of the COVID-19 pandemic that started in 2019 and ended in 2023 might bias the statistical measures due to inconsistencies in the data collection and other crisis management situations, so they were not included in the analysis. “The NES questionnaire is used to collect the views of experts on a wide range of items, each of which was designed to capture a different dimension of the entrepreneurial framework conditions”, and the GEM APS is a unique instrument used to measure the level and nature of entrepreneurial activity around the world” [91]. The NES and APS databases were grouped into two regions: (1) Latin America, including Argentina, Brazil, Chile, Colombia, Guatemala, Mexico, Panama, Peru, Puerto Rico, and Uruguay; and (2) the Middle East, including Egypt, Iran, Israel, Lebanon, Morocco, Qatar, Saudi Arabia, Turkey, and the United Arab Emirates. The sample sizes were balanced with 378 observations from Latin America and 372 from the Middle East, and average of 37 respondents per country. The 10 countries for Latin America and 10 for the Middle East were chosen because they are the most representative and their information was available.

The data analysis was conducted through a variance-based structural equations model and the specific technique of partial least squares (PLS-SEM) with the software SmartPLS version 3.0. The PLS-SEM technique was chosen because it is a second-generation statistical tool applied in empirical research in the social sciences, using unobservable variables measured indirectly by indicator variables. It is also a causal modeling technique that estimates path coefficients, helping to answer how the latent variables are related to each other by testing the hypotheses previously defined [92]. This structural equation technique will finally indicate the path coefficients that show direct causal relationships. This technique is superior to correlation coefficients, for example, which do not indicate a causal relationship. Therefore, it is the best method to accomplish the objective of this study: exploring the relationships of variables to explain certain effects, in this case, the relationships of the EEs’ conditions that are determinants of the total early stage activity (see Figure 1). The PLS-SEM was conducted twice with the same variables, once for each regional sample.

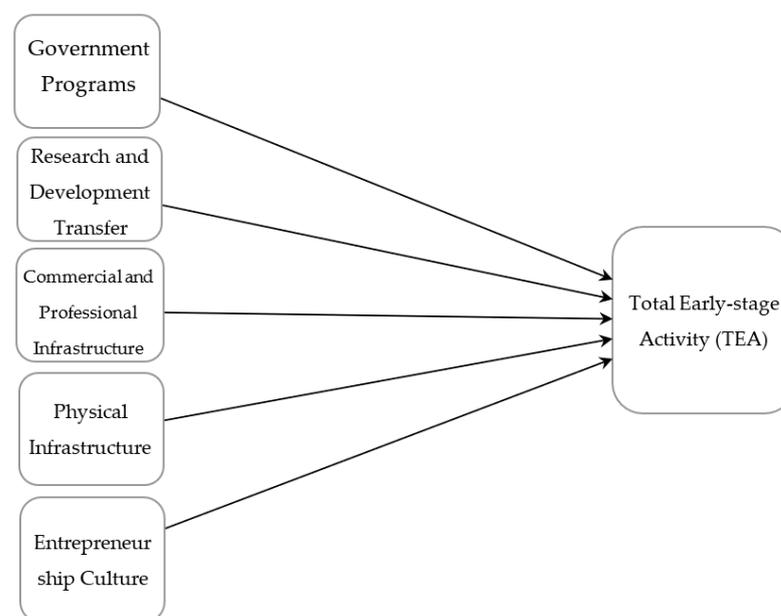


Figure 1. Visual Representation of the PLS-SEM Conducted for Each Region.

Measurement of the Study Variables

The measurement of each variable was created by the Global Entrepreneurship Monitor [91].

1. **Government Programs:** This condition was measured with six items on a nine-point Likert scale comprising the following statements: (a) In my country, a wide range of government assistance for new and growing firms can be obtained through contact with a single agency; (b) In my country, science parks and business incubators provide effective support for new and growing firms; (c) In my country, there is an adequate number of government programs for new and growing businesses; (d) In my country, the people working for government agencies are competent and effective in supporting new and growing firms; (e) In my country, almost anyone who needs help from a government program for a new or growing business can find what they need; (f) In my country, government programs aimed at supporting new and growing firms are effective.
2. **Research and Development Transfer:** This condition was measured with six items on a nine-point Likert scale comprising the following statements: (a) In my country, new technology, science, and other knowledge are efficiently transferred from universities and public research centers to new and growing firms; (b) In my country, new and growing firms have just as much access to new research and technology as large, established firms; (c) In my country, new and growing firms can afford the latest technology; (d) In my country, there are adequate government subsidies for new and growing firms to acquire new technology; (e) In my country, the science and technology base efficiently supports the creation of world-class new technology-based ventures in at least one area; (f) In my country, there is good support available for engineers and scientists to have their ideas commercialized through new and growing firms.
3. **Commercial and Professional Infrastructure:** This condition was measured with five items in a nine-point Likert scale comprising the following statements: (a) In my country, there are enough subcontractors, suppliers, and consultants to support new and growing firms; (b) In my country, new and growing firms can afford the cost of using subcontractors, suppliers, and consultants; (c) In my country, it is easy for new and growing firms to find good subcontractors, suppliers, and consultants; (d) In my country, it is easy for new and growing firms to find good, professional legal and accounting services; (e) In my country, it is easy for new and growing firms to get good banking services (checking accounts, foreign exchange transactions, letters of credit, and the like).
4. **Physical Infrastructure:** This condition was measured with five items on a nine-point Likert scale comprising the following statements: (a) In my country, the physical infrastructure (roads, utilities, communications, waste disposal) provides good support for new and growing firms; (b) In my country, it is not too expensive for a new or growing firm to obtain good access to communications (phone, Internet, etc.); (c) In my country, a new or growing firm can obtain good access to communications (telephone, internet, etc.) in about a week; (d) In my country, new and growing firms can afford the cost of basic utilities (gas, water, electricity, sewer); (e) In my country, new or growing firms can obtain good access to utilities (gas, water, electricity, sewer) in about a month.
5. **Entrepreneurship Culture:** This condition was measured with five items on a nine-point Likert scale comprising the next statements: (a) In my country, the national culture is highly supportive of individual success achieved through one's own personal efforts; (b) In my country, the national culture emphasizes self-sufficiency, autonomy, and personal initiative; (c) In my country, the national culture encourages entrepreneurial risk-taking; (d) In my country, the national culture encourages creativity and innovativeness; (e) In my country, the national culture emphasizes the

responsibility that the individual (rather than the collective) has in managing his or her own life.

6. Total Early Stage Entrepreneurial Activity (TEA): measured by the percentage of the 18–64 population in a country who are either a nascent entrepreneur or owner-manager of a new business.

5. Results

The results are divided into three steps: (1) descriptive analysis, (2) construct validity and reliability analysis, and (3) path coefficients. Table 1 shows the percentages of TEA and the average level of each independent variable for each region.

Table 1. Descriptive Analysis per Region.

Variables	Latin America	Middle East
TEA	17.7%	11.5%
Government Programs	4.4	4.2
Research and Development Transfer	3.6	3.8
Commercial and Professional Infrastructure	4.3	4.9
Physical Infrastructure	5.9	6.2
Entrepreneurship Culture	4.8	5.3
Government Programs	4.4	4.2

5.1. Descriptive Analysis

The early stage entrepreneurial activity (TEA) in Latin America is 17.7%, higher than the Middle East with 11.5% of the population that is a nascent entrepreneur. The variable with the highest score is “Physical Infrastructure” with 6.9 out of 9 points in the Middle East and 5.9 out of 9 points in Latin America. The lowest variable is “Research and Development Transfer” with 3.8 out of 9 points in the Middle East and 3.6 out of 9 points in Latin America. The low average results per variable show us an opportunity area for both EEs.

5.2. Construct Validity and Reliability Analysis

The second step to analyze the data was to evaluate: (1) internal consistency reliability, (2) convergent validity, and (3) discriminant validity. This was evaluated in the sample of each region in Latin America and the Middle East.

Internal consistency reliability was evaluated by Cronbach’s Alpha and composite reliability; the values of both indicators were above 0.7, indicating that all latent variables have internal consistency reliability [93]. Convergent validity was measured with average variance extracted (AVE), the values were higher than 0.5, indicating that, on average, the construct explains more than half of the variance of its indicators [94]. Tables 2 and 3 show the internal consistency indicators. Table 3 of the Middle East sample indicates that we removed some items that did not have loadings higher than 0.7. For “Government Programs”, 3 out of 6 items were eliminated; for “Research and Development Transfer”, 4 out of 6 items were eliminated; and for “Physical Infrastructure”, 3 out of 5 items were eliminated.

The Fornell-Larcker Criterion was used to assess the discriminant validity of the indicators. The indicators of outer loadings on the construct were higher than all their cross-loadings with other constructs; hence, discriminant validity exists. Tables 4 and 5 show the data for Latin America and the Middle East [94].

Table 2. Reliability and Convergent Validity Measures for the Latin America Sample.

Variable	No. of Items	Cronbach's Alpha	Composite Reliability	AVE
Government Programs	6	0.869	0.877	0.548
Research and Development Transfer	6	0.810	0.858	0.503
Commercial and Professional Infrastructure	6	0.840	0.839	0.526
Physical Infrastructure	5	0.798	0.840	0.534
Entrepreneurship Culture.	5	0.899	0.912	0.677
Total Early stage Entrepreneurial Activity	1	1.000	1.000	1.000

Table 3. Reliability and Convergent Validity Measures for the Middle East Sample.

Variable	No. of Items	Cronbach's Alpha	Composite Reliability	AVE
Government Programs	3	0.825	0.894	0.738
Research and Development Transfer	2	0.718	0.871	0.772
Commercial and Professional Infrastructure	2	0.703	0.863	0.761
Physical Infrastructure	5	0.817	0.868	0.570
Entrepreneurship Culture.	5	0.898	0.924	0.710
Total Early stage Entrepreneurial Activity	1	1.000	1.000	1.000

Table 4. Discriminant Validity Measures for the Latin America Sample.

Variable	Entrepreneurship Culture	Physical Infrastructure	Commercial and Professional Infrastructure	Government Programs	TEA	Research and Development Transfer
Entrepreneurship Culture	0.823					
Physical Infrastructure	0.203	0.731				
Commercial and Professional Infrastructure	0.120	0.343	0.725			
Government Programs	0.263	0.145	0.270	0.740		
TEA	0.111	0.266	−0.071	−0.172	1.000	
Research and Development Transfer	0.247	0.193	0.426	0.543	−0.132	0.709

Table 5. Discriminant Validity Measures for the Middle East Sample.

Variable	Entrepreneurship Culture	Physical Infrastructure	Commercial and Professional Infrastructure	Government Programs	TEA	Research and Development Transfer
Entrepreneurship Culture	0.843					
Physical Infrastructure	0.123	0.755				
Commercial and Professional Infrastructure	0.292	0.272	0.872			
Government Programs	0.325	0.322	0.341	0.859		
TEA	0.304	−0.455	0.116	−0.080	1.000	
Research and Development Transfer	0.350	0.320	0.403	0.614	−0.116	0.878

5.3. Path Coefficients

After measuring the reliability and validity of the constructs, as a third step, the PLS-SEM Algorithm was used to obtain the structural model relationships (see Table 6). The results of the hypothesis test were:

- (H1) Government Programs does not significantly impact Total Early Stage Activity in the Middle East (p -value 0.432, $\beta = -0.010$) but significantly and negatively impacts it in Latin America (p -value 0.011, $\beta = -0.178$);
- (H2) Research and Development Transfer significantly and negatively impacts Total Early Stage Activity in the Middle East (p -value 0.004, $\beta = -0.163$) but does not significantly impact it in Latin America (p -value 0.090, $\beta = -0.079$);
- (H3) Commercial and Professional Infrastructure significantly and positively impacts Total Early Stage Activity in the Middle East (p -value 0.000, $\beta = 0.216$) but does not significantly impact it in Latin America (p -value 0.176, $\beta = -0.115$);
- (H4) Physical Infrastructure significantly and negatively impacts Total Early Stage Activity in the Middle East (p -value 0.000, $\beta = -0.504$) but significantly and positively impacts it in Latin America impact (p -value 0.000, $\beta = 0.321$);
- (H5) Entrepreneurship Culture significantly and positively impacts Total Early Stage Activity in the Middle East (p -value 0.000, $\beta = 0.363$) but does not significantly impact it in Latin America (p -value 0.115, $\beta = 0.126$).

Table 6. Path Coefficients in Both Regions.

Associations	Latin America		Middle East	
	Coefficient	p -Value	Coefficient	p -Value
Government Programs→TEA	-0.178	0.011	-0.01	0.432
Research and Development Transfer→TEA	-0.079	0.090	0.004	-0.163
Commercial and Professional Infrastructure→TEA	-0.115	0.176	0.216	0.000
Physical Infrastructure→TEA	0.321	0.000	-0.504	0.000
Entrepreneurship Culture→TEA	0.126	0.115	0.363	0.000

The two regions, Latin America and the Middle East, have diverse EEs; each condition impacts TEA in different ways depending on the region (see Figure 2). In Latin America, the most relevant variable that significantly and positively impacts the TEA is “Physical Infrastructure”, while in the Middle East, the most determinant EE conditions for TEA are “Commercial and Professional Infrastructure” and “Entrepreneurship Culture”. Both regions are considered in the same group of developing countries with emerging economies, but this study shows that to support entrepreneurial activities, EEs require different settings by region.

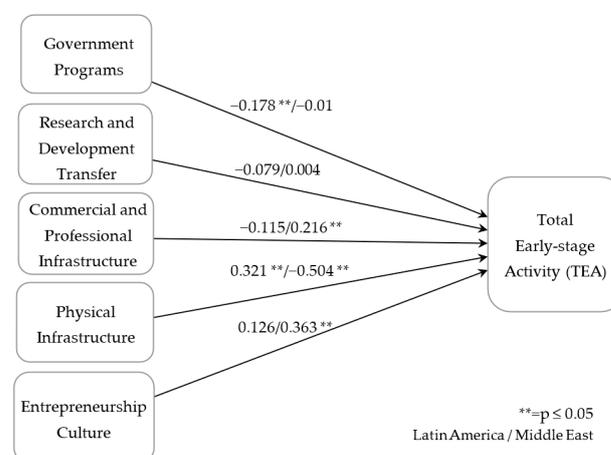


Figure 2. Visual Representation of the PLS-SEM Results Conducted for Each Region.

6. Discussion

The variables that influence entrepreneurial activity in one region and the other are different; this is justified by the ecosystem heterogeneity that explains why some ecosystems show better performance than others [36]. The Latin American and Middle Eastern entrepreneurial ecosystems have different characteristics. In the next paragraphs, we will explain some of the reasons for those findings. These findings are aligned with Isenberg's [95] arguments to stop emulating Silicon Valley, as it is not as easy as copying and pasting the systemic conditions; they must be adapted to each entrepreneurial ecosystem, basically because the entrepreneurs are at the center and are subject to the effects of framework conditions, as presented by Stam and Van de Ven [96] as the entrepreneurial ecosystem elements. It is important to highlight that based on the Stam and Van de Ven [96] model, we can infer that for both regions of analysis, the significant conditions with a positive impact on TEA are framework conditions and are at the base of any entrepreneurial ecosystem before moving toward the systemic conditions.

6.1. Middle East Determinants of Entrepreneurial Activities

The Middle Eastern entrepreneurial ecosystem has relevant and irrelevant elements that foster or decrease entrepreneurial activity. The element that fosters entrepreneurial activity in this region is entrepreneurship culture, which includes the social norms that create in people an attraction to entrepreneurial activities [86]; this finding corresponds to the results of Cowling and Lee [97] and Hechavarría and Ingram [4]. The second element that significantly fosters entrepreneurial activity is commercial and professional infrastructure. Khursheed et al. [98] found similar results in social entrepreneurship activity. Physical infrastructure in the Middle East has a significant negative impact on entrepreneurship activity, contrary to the results of Yan and Guan [99] and Guerrero et al. [54], which indicate that physical infrastructure increases the entrepreneurial activity. This finding contributes to the literature because it indicates that a "positive" element could create a negative impact on entrepreneurship activity. There exists an explanation of this phenomenon made by Amorós [100]; they indicate that in one country, there could exist two types of geographical locations: core regions and peripheral regions. The latter have low human capital and physical infrastructure. When experts rate a country in general, they rate it with higher indicators in physical infrastructure because they have the overview of a core region, but in peripheral regions, the physical infrastructure is poor. Then, the perception of experts in general is good, but not all regions in the country could have the level of physical infrastructure that experts indicate.

Research and development transfer does not have a significant impact on entrepreneurial activity; some studies conducted in this region found that there exists low technology absorption, poor systems that enable digital payments, and the technology and knowledge transfer is limited by complex policies [43,46,47]. Government programs do not have a significant impact on entrepreneurial activity. Villegas-Mateos [52] found that government programs in Qatar, for example, do not create a positive impact because they are not customer-centric; that is the main reason why government programs in this region do not create enough impact on entrepreneurial activity. Guerrero et al. [54] indicate that there exist different types of responses from government programs; some are for short-term issues and others for long-term issues, and the effectiveness of the government's efforts is heterogeneous. Also, the impact of government programs depends on the gender of the people who receive that benefit [101]. Although government programs do not significantly impact entrepreneurial activities, some studies show the effort of some countries in this region to foster the creation of new businesses [46,50,51,102]; then, these attempts could be reflected in the entrepreneurship culture of the region.

6.2. Latin America Determinants of Entrepreneurial Activities

In the Latin American entrepreneurial ecosystem, the element that significantly and positively impacts entrepreneurial activities is physical infrastructure. Similar results

are found in the studies of Yan and Guan [99] and Guerrero et al. [54]; this condition especially impacts less developed countries [82]. In fact, physical infrastructure was the only variable that significantly and positively impacted total early stage entrepreneurial activity; that contributes to the description of the factor that fosters TEA in this region. In next paragraphs, we discuss important findings about the absence or negative effects of the rest of the variables.

Government programs negatively impact entrepreneurial activities, contrary to the results of Guerrero et al. [54], which indicate that efficient short-term adaptability of government to external issues creates positive aspirations for entrepreneurs to grow. Pilková et al. [64] state that government programs help entrepreneurs deal with the challenges of creating a new business, for example, with financial assistance or by facilitating the interaction between stakeholders; perhaps in other studies, the benefits of government programs were found. These findings contribute to the literature with the negative impact of government efforts on entrepreneurial activity. We present an explanation of this finding. The main reason is the diversity of entrepreneurs' characteristics, but a remarkable one is the levels of poverty and necessity entrepreneurs that exist in Latin America and the lack of government programs that meet the special needs of those entrepreneurs. It is important to highlight the complexity of the phenomena in fostering entrepreneurship because of the huge diversity of entrepreneurs; for example, their sex, age (too young or too old), income level (low or high), disabled status, immigrant status, the industry sectors where they want to create the new business and the challenges that they face in each one, and the access that they have to necessary information to perform entrepreneurial activities [103–105]. For example, the industry sector has a moderating effect on the relationship between government initiatives and entrepreneurship; the impact of government initiatives decreases in the manufacturing sector compared to the services sector [105]. Kupiainen et al. [103] state that government programs forget older people in entrepreneurship initiatives, which also creates non-inclusive policies. One of the characteristics of the Latin American Entrepreneurs' context is the informal entrepreneurs, necessity entrepreneurs, and 30.48% of the population in poverty [76,106,107]. In a study developed with entrepreneurs in an early stage, it was found that liabilities of poorness increase venture fragility and potential failure due to a poverty context that creates in the individual a scarcity mindset because of day-to-day economic problems, for example, paying for facilities or obtaining good quality food. This mindset decreases the quality of the decision-making process. These findings encourage the creation of government programs with a more poverty-inclusive perspective [104]. The liability of poorness creates necessity entrepreneurs; these people do not have other options to have access to a better life than entrepreneurship, and these types of entrepreneurs need a different policy approach than opportunity entrepreneurs [107]. The most interesting finding is the cognitive disadvantage that poverty contexts give to entrepreneurs and the challenges for policymakers to be more inclusive with poor entrepreneurs, but also with the different situations that each type of entrepreneur has.

Research and development does not significantly impact entrepreneurial activity in the Latin American region; some studies found that unstable legislation, the low level of technology transfer, limited access to capital funding, and high levels of informal entrepreneurs create a negative impact on the entrepreneurship process [53,55,76].

Commercial and professional infrastructure, such as lawyers, technology consultants, accountants, suppliers, and subcontractors, does not impact entrepreneurial activity, contrary to the results of Khurshed et al. [98], which indicate that commercial infrastructure has a positive impact on social entrepreneurship. Professionals like lawyers and accountants help with the challenges that entrepreneurs face in their journey to create a new business [78,79]. One of the contributions of this study is that in Latin American regions, there is not good enough commercial and professional infrastructure to create a significant impact on entrepreneurial activity because of barriers that entrepreneurs commonly have in accessing them, paying their fees, or the availability of having the right professionals help the entrepreneur with a specific challenge that they are facing at that moment. Also,

Msimango-Galawe and Majaja [80] state that depending on the zone of the country, entrepreneurs will have high or low levels of barriers to accessing the right supplier. Latin America has a diversity of zones with low and high levels of these barriers and also necessity entrepreneurs who commonly do not have access to this type of commercial and professional infrastructure.

Entrepreneurship culture does not significantly influence entrepreneurship activity, which is contrary to findings in other studies that found entrepreneurship culture positively impacts entrepreneurial activity [4,97]. Although other studies show positive results of entrepreneurship culture on entrepreneurial activity, each local or national entrepreneurial ecosystem needs a specific type of entrepreneurship culture. For example, if the purpose of the entrepreneurial ecosystem is to foster venture capital-based start-ups, the need is to create a venture capital-financed entrepreneurship culture; a generalistic entrepreneurship culture does not work in all scenarios [108]. That means that in Latin America, the general type of entrepreneurship culture does not have enough power to create a significant influence on entrepreneurial activity due to the characteristics of necessity entrepreneurs and the challenges that they face. Most of the time, institutions create entrepreneurship heterotopias, which means a place far from adversity, a scarcity environment, and low social capital; that place has the purpose of creating a place for entrepreneurship flourishing. Entrepreneurship culture is a form of entrepreneurship heterotopia. For example, in Mexico, a community-based enterprise was created to support entrepreneurs and foster a vibrant entrepreneurship culture to solve the problems of a rural and conflict area with market potential. The efforts did not work; the entrepreneurship heterotopias are not enough to solve the complex problems that are linked with adversity, poor and scarcity environments, and low social capital [109].

7. Conclusions

The Middle East region has elements that foster entrepreneurial activity: entrepreneurship culture and commercial and professional infrastructure. On the other hand, one of the interesting findings is that physical infrastructure negatively influences entrepreneurial activity. Amorós [100] indicates that it is important to highlight that in reality, not all regions in a country have the same level of physical infrastructure, especially in peripheral zones where the physical infrastructure is poor; that could be the reason for this result. The zones with low physical infrastructure could have higher motivation to create wealth and the benefits that come from creating new firms. What is interesting is that this region has been investing heavily in physical infrastructure by reinvesting their oil and gas revenues for the last 20 to 30 years. However, the results are showing that more than that, entrepreneurial culture and commercial and professional infrastructure are more important.

Government programs do not impact entrepreneurial activity. The reasons could be that governments do not design public policies and programs with a customer-centric view [52]. Research and development transfer lacks impact on entrepreneurial activity. We highlight that most of the time, the duty of research and development transfer is the responsibility of the government or public and private universities, although the main objective of these institutions is not to foster R&D transfer; that could be one of the reasons why this activity lacks impact. We propose that more R&D NGOs should be involved in a key activity that could generate more benefits for the region. These R&D NGOs will be more focused on the main purpose of linking technology and knowledge to the market, working together with government and universities. Another reason is that research and development transfer requires highly skilled talent. Some studies conducted in the Middle East found that there exists low technology absorption, poor systems that enable digital payments, and technology and knowledge transfer is limited by complex policies [43,46,47]. Then, for example, the highly skilled talent to develop R&D activities will be experts on technology that enables digital payments. Other types of talent are necessary, such as those with commercial and negotiation skills. If R&D NGOs create this workforce, R&D transfer will be more successful.

In the Latin American region, the element that fosters entrepreneurial activity is physical infrastructure, which highlights the benefits of investing in this element to foster entrepreneurship. On the other hand, government programs in this region are discouraging entrepreneurial activities. Some of the reasons for this could be the levels of necessity entrepreneurs and poverty in this region, which create a cognitive disadvantage for entrepreneurs. Policymakers need to create policies with a more inclusive perspective on poor entrepreneurs and their diversity; we suggest more customer-centric government programs.

Research and development transfer does not impact entrepreneurial activity. We state that this region needs to strengthen this capacity and not only rely on the efforts that government and universities make; the main objective of these institutions is not to foster R&D transfer, which could be one of the reasons why this activity lacks impact. The R&D NGOs could work to create more projects that accomplish the transfer of knowledge and research. These NGOs will train the highly skilled talent that this type of activity needs; then technology, commercial, and negotiation talent will be serving universities, government, and entrepreneurs. These actions from R&D NGOs could help with the barriers to R&D in this region: unstable legislation, limited access to capital funding, and high levels of informal entrepreneurs [53,55,76]. Commercial and professional infrastructure does not affect entrepreneurial activity; this indicates that Latin America has barriers to accessing this type of infrastructure. Strengthening the link between professionals who could help entrepreneurs with the challenges they are facing is important. We suggest that part of the entrepreneurship culture that must be developed in this region is a supportive entrepreneurship culture to foster professionals to work pro bono for entrepreneurs in adversity conditions and promote entrepreneurs asking for help.

Finally, entrepreneurship culture does not influence entrepreneurial activity in this region. Fostering a positive attitude toward entrepreneurship in society is not enough if you are in a region with adversity, a poor and scarce environment, and low social capital; a tailored entrepreneurship culture is needed to foster entrepreneurial activity. We recommend first to promote a supportive entrepreneurship culture, where part of that supportive entrepreneurship culture is to promote the change in mindset of necessity entrepreneurs through education and mentorship, and also promote the support of opportunity entrepreneurs to work with necessity entrepreneurs in this mindset change process. Entrepreneurship culture takes time, but it is not enough because if you only work on it, it could create entrepreneurship heterotopias that do not solve the root cause of the entrepreneurship disadvantage mindset problem.

7.1. Managerial Implications

For international entrepreneurs who want to have a general vision of these two regions, the findings of this study are relevant. The Middle East fosters entrepreneurship activities due to their commercial and professional infrastructure and entrepreneurship culture. In Latin America, entrepreneurial activity is fostered by physical infrastructure. That gives entrepreneurs some context of the elements that are positively affecting entrepreneurial activity in the early stages. The elements that discourage entrepreneurial activity are physical infrastructure in the Middle East and government programs in Latin America. Perhaps there exists a negative effect of physical infrastructure in the Middle East that could be because zones with less physical infrastructure have a higher motivation to create businesses that generate the wealth to create the required physical infrastructure in these zones, and zones with more physical infrastructure do not have the motivation to create more wealth. In Latin America, the negative effects of government programs are due to the diversity of entrepreneurs and the high levels of poverty and necessity entrepreneurs, which encourages policymakers to create more inclusive entrepreneurship policies that include this diversity and, most importantly, a poverty policy perspective. This overview can give international entrepreneurs the characteristics of these regions to make better decisions.

For policymakers, it is important to highlight the elements that still need to be worked on. In the Middle East region, government programs need to be developed with a customer-

centric view, meaning to put the entrepreneurs at the center and develop the capacity to respond to short-term issues and work on long-term issues. They also need to reinforce research and development transfer, which could be boosted and supported by R&D NGOs that could be more effective in charge of this type of activity.

The Latin American region needs to strengthen government programs, research and development transfer, commercial and professional infrastructure, and entrepreneurship culture. Especially important are programs to strengthen the link between professionals who could help entrepreneurs with the challenges they are facing. We suggest that part of the entrepreneurship culture that must be developed in this region is a supportive entrepreneurship culture to foster professionals to work pro bono for entrepreneurs in adversity conditions and promote entrepreneurs asking for help. Also needed is an entrepreneurship culture based on promoting the change in mindset of necessity entrepreneurs. Specialized education with a diversity and necessity entrepreneurs' perspective is necessary for this region. R&D NGOs that help to develop the highly skilled talent needed to foster collaborations between universities, government, and entrepreneurs are also needed. These strategies contribute to actions to be taken in an integrative form. The countries in this region could join efforts to create a supportive entrepreneurship culture based on the transfer of knowledge, technology, and the creation of specialized skills, but above all, an inclusive form of diversity and necessarily the entrepreneurs' perspective.

Finally, Latin America could learn from the Middle East region about how to create an entrepreneurial culture and how to develop commercial and professional infrastructure. The interaction of these two regions could complement and create better opportunities for entrepreneurs. In addition, for business incubation program managers, these findings can help allocate resources that can aim to fill out the gaps in their local entrepreneurial ecosystems to trigger productive entrepreneurial activities. For example, targeting mindset and culture in an ideation program before moving toward business registration, product launch, and use of physical infrastructure.

7.2. Limitations

The limitation of this study is the general view of the variables because the perceptions of experts from each region and country depend on the efforts of the GEM national teams. At the same time, each region is characterized by different prominent sociodemographic factors like Islam and monarchies in the Middle East, and Catholicism and democracies in Latin America, which this study did not take into consideration to measure the direct effect. A future study in this area can include the evaluation of public policies supporting the creation of new businesses or the effects of culture and religion on the motivations of entrepreneurs in these regions.

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