

Do Technology Startups Replicate Internationalization Patterns From Big Companies? Evidence From Latin America

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Abstract – This article discusses the internationalization of technology startups in Latin America. The study analyzed 121 startups from five countries using a quantitative approach and data was collected from the Crunchbase platform. Results indicate that Argentinean, Chilean, and Colombian startups have faster internationalization trajectories than their Brazilian and Mexican counterparts, which tend to remain local during initial stages following the Uppsala model pattern. Our study on startup internationalization in Latin America yielded comparable results to big tech companies from these countries. However, we noticed that Mexican startups have better access to financial support receiving double the investment compared to other organizations. These findings provide valuable insights into promotive international entrepreneurship in emerging countries and can inform public policy accordingly.

Keywords – Start-ups, internationalization, entrepreneurship, Latin America, international entrepreneurship, technology.

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1. Introduction

In the business environment, there is increasing encouragement for companies to move out of their domestic markets into other international markets in order to increase competitiveness and thus ensure their survival [1]. Although the net impact of entrepreneurship is not always positive for the economy [2], [3], it is impossible to ignore the dynamic effect that entrepreneurship can have on countries [4], [5], [6]. Despite the devastating impacts of the COVID-19 pandemic, entrepreneurs were able to adapt quickly to the changes [7], finding new business opportunities in the digital sector [8] to achieve accelerated internationalization. This adaptation process has not been unknown to Latin American companies.

Various studies have analyzed the internationalization of Latin American companies. For example, [9] focuses on Multilatinas while [10] examines technology Small and Medium Enterprises (SMEs) global expansion. These studies model internationalization as a process influenced by factors unique to each country that either enable or hinder market entry [11]. However, there are still research gaps around internationalization in emerging countries [12]. One of these gaps is around the study of the internationalization of Latin American startups. According to the literature review we have conducted, there are several recent works focused on the internationalization of medium and small firms [13], to date, there are no specific studies that explore the internationalization trajectories of startups.

Studying the internationalization of startups is important due to their economic impact worldwide [14], [15], and their need for quick scalability to ensure profitability [16]. This topic has many dimensions in the knowledge economy, especially in emerging regions like Latin America [17].

Despite recent studies examining the internationalization of medium and small firms, there is still a research gap in studying the internationalization of Latin American startups.

Internationalizing a company in Latin America has positive impacts on business results [18], although small and medium-sized companies lack experience and knowledge in the early stages of internationalization [19]. In any case, study [20] points out that the internationalization of firms is a factor that triggers innovation processes under a continuous improvement approach. However, internationalizing also represents risks for organizations, highlighting those of credit, exchange, and country risk [21]. The distance between countries is one of the most important factors when assessing the risks associated with the decision to internationalize the company [22].

Technology entrepreneurship in Latin America presents great growth opportunities [23], although it faces threats from a dynamic environment with high uncertainty. Therefore, the advantage of technology startups is that they can pose unique value propositions that can solve social problems in the various countries of the region [24]. In this sense, this study aims to explore the impact that internationalization has on the evolution process of startups.

Latin American companies generally prioritize the domestic market initially, with some countries such as Brazil showing a high level of risk aversion leading to low levels of internationalization [25], [26]. Contrastingly, startups in Colombia, Chile, and Argentina tend to rapidly enter international markets [27]. This trend is influenced by the degree of economic freedom of each country according to research [28].

The study [29] highlights the need for further research on international entrepreneurship in Latin America, especially concerning born-global enterprises in emerging economies such as this. Although there is some existing literature [30], it remains limited. In light of this gap, our study aims to provide evidence regarding early-stage internationalization among startups in Latin America.

This research is important because it sheds light on how technology startups in Latin America expand internationally. It helps fill a gap in our understanding of international entrepreneurship in the region, which could be useful for both public and private decision-makers. By providing insights into successful market entry strategies, this knowledge can support economic growth and maximize the impact of entrepreneurship throughout Latin America.

2. Literature Review

This section aims to provide a comprehensive overview of the current knowledge and a summary of the main academic findings related to startups and international entrepreneurship, in order to identify areas where this study can provide valuable evidence.

International Entrepreneurship

The study of international entrepreneurship draws on various concepts, particularly those related to business internationalization. Among these is the Uppsala Internationalization model introduced by [31], which proposes that companies progressively engage in global operations through a sequence of evolutionary phases.

Alternatively, another model of internationalization is the one proposed by [32], [33] called *born global*, which indicates that there are organizations that close to their foundation seek to leave their country to compete in international markets, to have a presence in multiple market. The proliferation of born global companies in different countries of the world shows that this is a relevant phenomenon [34]. Rapid internationalization serves as a means to generate competitive advantages derived from operating in different countries at the same time [35].

An alternative perspective between the Uppsala model and the concept of born global firms is introduced through the notion of “born regional companies” [36]. These organizations seek to expand outside their countries, but with a more focused approach, taking into consideration specific environmental conditions. The born regional concept can be seen as a narrower version of born global. This theory has particular significance in Latin America where there are both shared characteristics and distinct differences among countries in the region.

The emergence of born global startups, a concept proposed by [37] in the realm of international entrepreneurship, has garnered significant academic attention. However, despite previous studies like that conducted by [38] which examined this phenomenon within technology-based startups, there is still limited research on the underlying reasons why these ventures pursue internationalization strategies and what essential factors culminate in their successful implementation [39]. Several studies raise the need to study the phenomenon of entrepreneurial internationalization [40], [41], [42], in order to understand the characteristics of companies that engage in international entrepreneurship.

While expanding into international markets can provide numerous benefits for startups, it also involves a considerable amount of internal and external risks [43]. Therefore, the decision to go global is not always guaranteed to be profitable. The costs associated with the internationalization of markets may outweigh its advantages [44]. In Latin America where entrepreneurship varies from one country to another, adapting to each region's characteristics is crucial in guaranteeing adequate performance levels for new businesses operating globally while reducing natural risks [45].

On the other hand, the culture of entrepreneurship in Latin America is still developing. The environment of the different countries in the region requires managing continuous instability, as well as learning to live with natural disasters from time to time [46]. In Latin America, there is a consensus that the market potential of the countries in the region is still too small to create scalable businesses in the long term, with the exception of Brazil, which is an isolated ecosystem by virtue of its market size [47]. For this reason, entrepreneurs in countries such as Colombia, Argentina or Chile are forced to think more globally, looking for international business models from the very beginning. This situation is even more evident in Argentina, where entrepreneurs are strongly oriented to quickly exit to the international market due to the country's economic instability [48], [49].

Furthermore, access to financial resources to create scalable companies at the regional level is insufficient in most countries of the region, leading entrepreneurs to seek financing in international markets, where venture capital firms take advantage of this vulnerability in the system [50]. Mexico is becoming a favored destination for South American entrepreneurs, due to its larger market and perceived lower barriers to entry compared to their home countries. This situation is connected to a high bureaucracy that does not adjust to the needs of startups [51].

One aspect of particular importance is related to the fact that the international orientation of startups has a considerable impact on the dynamics of entrepreneurship ecosystems in smaller countries [52], [53], while in larger markets this influence is reduced [54].

Startups

A startup is an organization with a short institutional life, whose focus is on developing a scalable business model [55]. A complementary definition is provided by [56] who states that a startup is an institution that seeks to create a new product or service under extreme conditions of uncertainty.

Startups are known for taking high risks and, therefore, for having high business failure rates [57].

However, the process of creating a startup may be highly challenging in Latin America, taking into account the characteristics of bureaucracy and corruption that are present in the region [58]. There is a large number of barriers for entrepreneurs, as well as a weak business ecosystem [59] even though the opportunities to create high-value startups in the continent are high due to a certain level of homogeneity that exists in the problems faced by the region [60]. Therefore, startups in the region must have high organizational flexibility to adapt quickly to the constant changes (economic, social, and political) that arise in Latin America [61], since each country in the region has its own characteristics.

Thus, when analyzing the ecosystems of the countries in the region, Colombia is a country that has a clear focus on the internationalization of its startups, since through public and private support it has been able to create a large number of startups in different economic sectors [62]. In this regard, the support of agencies such as Innpulsa Colombia [63] stands out, which added to a high development of networking in the entrepreneurial ecosystem [64] has allowed to obtain outstanding results by scaling internationally. In Peru, support for entrepreneurs is highlighted by the existence of the StartUp Peru program, created in 2014 by the public agency Innóvate Perú, which has allocated more than US\$10 million to promote the creation of high-value entrepreneurs [65]. However, the state program does not have a direct focus on promoting the internationalization of Peruvian startups, which leads companies to seek options in the venture capital market to scale, which often means that startups leave the country quickly due to the lack of opportunities in the local market [66]. Thus, [67] show how Peru's entrepreneurial ecosystem has pending challenges in terms of boosting the creation and internationalization of startups.

In Argentina, there are different public initiatives aimed at strengthening the entrepreneurial ecosystem in the country, which are centralized by the Ministry of Economy, although there are also projects developed by the Ministry of Foreign Affairs with a clear focus on the internationalization of startups. Although the enactment of the Entrepreneurs Law and the Fund for the Development of Entrepreneurial Capital (2017) has broadened the spectrum of options for entrepreneurship, it is the private sector that has the greatest dynamism in the country, where venture capital firms such as Alaya Capital, NXTP or Kaszek Ventures lead the financing rounds of Argentine startups.

In this regard, Argentina has good conditions to develop globally competitive startups, but the context of recession and economic stagnation is a factor against a higher level of internationalization.

In contrast, there is the case of Chile, which is characterized by the high degree of internationalization of its startups, where in addition to the small size of the market, one of the factors that favors the rapid internationalization of startups is the state program "Startup Chile" [68], to the extent that it strengthens the local ecosystem through monetary and non-monetary support to Chilean ventures, encouraging them to go out to new markets to expand their demand.

In Brazil, this internationalization process does not follow a uniform pattern, i.e., the strategies followed by Brazilian startups are less predictable. In this regard, one of the most important challenges for organizations in this country is building digital capabilities to ensure successful internationalization [69]. Therefore, there is a considerable level of uncertainty when deciding to go outside the borders and failure is part of the options. In this line, a case of a Brazilian startup that had a failed attempt to internationalize in its early stage of life, which allows raising the question around the convenience of going out to explore new markets, is presented in study [70]. For the specific case of technology companies, [71] suggest that the results obtained by Brazilian companies that took 5 or more years to go abroad were superior to those that did so earlier. In this line, successful results depend to a greater extent on international experience and not so much on technological innovation [72]. This assertion can be supported by the fact that Brazilian startups first develop partnerships from their country, which added to public policies for internationalization make going abroad effective for those who waited. The StartOut Program initiative was launched in Brazil in 2017, with the support of several public agencies, in order to promote the internationalization of innovative companies in the country.

In Mexico, although the development of entrepreneurship has a long history, it is from the year 2013 that it begins to have formal support from the public sector, through the creation of INADEM (National Institute of Entrepreneurship). However, this institute was deactivated by the next government in 2019. One of the characteristics of the Mexican ecosystem is that support for entrepreneurs can vary in different regions of the country [73], although this situation contrasts with the large number of private venture capital firms such as ALLVP, Dalus Capital, Dila Capital, Mita Ventures or Ignia, which support startups at different stages of development. Although there are opportunities in Mexico for the development of startups, there is a need for greater linkage between the actors in the ecosystem around financial support [74].

3. Methodology

In this section, we detail the structured approach undertaken in the project, including data collection process, sampling strategies, and analytical tools in order to assess the study's reliability.

Data collection

Technology-based startups from Argentina, Brazil, Colombia, Chile, and Mexico were included in a sample of 121 organizations. The data was collected through the Crunchbase business information platform, which contains investment and financing data for startups and corporations from around the world.

Sample election criteria

The sample included technology-based startups from the seven countries previously mentioned. The first inclusion criterion was that all companies had undergone at least one round of financing in the last 12 months (January to December 2022). The second criterion was that all companies in the sample had undergone (at most) one Series B, which is a round of financing focused on consolidating the *startup's* growth [75].

Variables used in the study

Name	Type	Description
Funding	Quantitative	Amount invested by investors (in USD)
Series	Quantitative	Number of investment series
Years	Quantitative	Years of life since foundation
Employ	Quantitative	Number of workers declared by the startup
Inv_rou	Quantitative	Number of investment rounds
Lead_Inv	Quantitative	Number of leading investors
Countries	Quantitative	Number of countries where the startup operates
Out_bmu	Quantitative	Number of countries where the startup operates, considering only Brazil, Mexico and the United States.

To ensure the integrity of the quantitative analysis, a transformation was applied to the "Funding" and "Employ" variables, where the final variable corresponds to the logarithm of the original data, in order to ensure that all the variables of the model are on a comparable scale, so as not to distort the results of the cluster analysis.

Descriptive statistics

The following is a statistical summary of the most important values in the database.

The monetary values presented are in U.S. dollars (USD), and correspond to the total resources provided by the startup's shareholders in the different investment rounds.

Table 1. Amount invested in startups

	Amount
Minimum	\$ 49,667
Maximum	\$ 436,074,685
Average	\$ 35,228,142
Median	\$ 19,271,960

Table 2. Age of startups

	Years
Minimum	1
Maximum	23
Average	4.4
Median	3.1

The age of the startups was rounded to 1 year in the case of those organizations that had less than 12 months of institutional life since their incorporation.

Table 3. Number of countries in which startups operate

	Quantity
Minimum	1
Maximum	20
Average	2.8
Median	1

Table 4. Absolute frequency of number of countries

	Startups
1 country	75
2 countries	13
3 countries	6
4 or more countries	27

Table 5. Number of countries where startups operate, by country

	BRA	MEX	COL	ARG	CHI	Total
1 country	57	10	7	1	0	75
2 countries	5	3	4	0	1	13
3 countries	1	4	1	0	0	6
4 or more	4	4	7	6	5	27
Total	67	21	20	7	6	121

Table 6. Country of origin of the startup

Country	Number of Startups	Percentage
Brazil	67	55.4%
Mexico	21	17.4%
Colombia	20	16.5%
Argentina	7	5.8%
Chile	6	5.0%

In order to generate insights from the data collected, a K-means cluster analysis was applied, as

proposed by [76] as an appropriate technique for exploratory data analysis.

This methodology is also used in business internationalization studies such as those of [77], [78]. The level of variance captured by this analysis was 49.1%.

4. Results

First, Pearson correlation matrix is presented to determine the level of correlation between each variable in the model.

Table 7. Pearson's correlation matrix

	Funding	Series	Years	Employ	Inv_rou	Lead_Inv	Countries	Out_bmu
Funding	1.00							
Series	0.44	1.00						
Years	0.01	0.20	1.00					
Employ	0.39	0.24	0.09	1.00				
Inv_rou	0.04	0.24	0.16	0.08	1.00			
Lead_Inv	0.33	0.14	-0.11	0.16	0.40	1.00		
Countries	0.17	0.03	0.24	0.29	0.15	0.07	1.00	
Out_bmu	0.11	0.10	0.20	0.18	0.26	0.06	0.74	1.00

According to Table 7, it can be seen that in general there are no highly significant correlations, except for the one between the variables "Countries" and "Out_bmu", which is due to the nature of both, in the sense that "Out_bmu" is a derivation of "Countries", since the aim was to have a level of specification to count the most important countries in the American continent (Brazil, Mexico and the United States) where the companies operate.

After performing the correlation analysis, different procedures were carried out to determine the optimal number of clusters for the model. In this study, three clusters have been considered, due to the level of statistical differentiation of each cluster. Table 8 shows the characteristic parameters of each cluster.

Table 8. Relevant statistics by cluster

	Cluster 1	Cluster 2	Cluster 3
Number of Startups	20	74	27
Countries of operation (Average)	2.15	3.04	2.51
Funding (Average)	\$ 46,437,513	\$ 34,574,906	\$28,715,255
Years of life (Average)	4.15	4.57	4.29
Investment rounds (Average)	3.3	3.8	3.1

Cluster 1 is composed of startups with a higher average level of financing, which is 34% higher than the average of Cluster 2. In this cluster there are only startups from Brazil, Mexico, and Colombia, and an element that distinguishes most of the companies in this group is the low level of internationalization, since 15 of the 20 startups in the cluster operate in their local market, and 4 of the remaining 5 only operate in one foreign country.

Another dimension that stands out is that its average lifespan is shorter than that of the other two clusters. For these reasons, this cluster is referred to as "Local", insofar as its level of internationalization is low.

Cluster 2 has the largest number of startups (74), with 61% of the sample falling into this group.

Although this cluster has a large number of Brazilian organizations (36 out of 74), it can be seen that all Brazilian startups with a higher level of internationalization (operating in 6 or more countries) are inserted in this cluster. A value that stands out in this cluster is the number of countries where the startups operate, which is superior to the other clusters. In addition, in this cluster all countries have at least one representative, which makes it more geographically diverse. However, these results should be interpreted with caution, as the level of variance of the model is relatively low.

Finally, when analyzing cluster 3, it can be seen that it is mainly composed of Brazilian startups (18 out of 27), where 14 of these 18 organizations only operate in the local market. Three of the remaining four operate in two countries. When looking at the number of countries where the other 9 startups (from Argentina, Colombia, Chile, and Mexico) operate, the average increases to 5. One variable that distinguishes this cluster is the amount of investment, which is lower than Cluster 1, even though they are organizations with a longer life span. Figure 1 shows the spatial distribution of the three clusters considered in the sample.

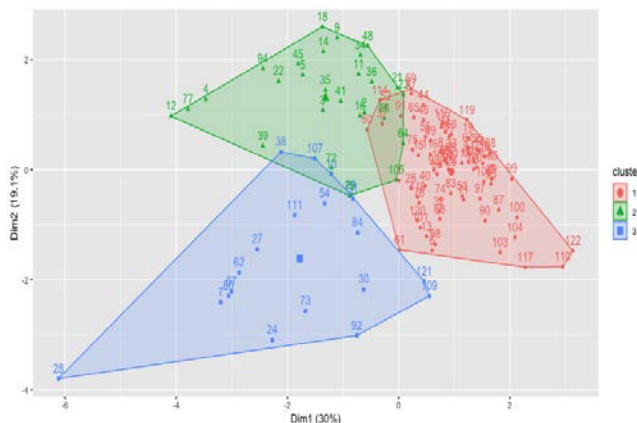


Figure 1. Startup clusters by typology

5. Discussion

The obtained results impart a deeper insight into the internationalization of startups and are in line with previous research conducted by [79]. According to their study focusing on companies from Costa Rica, some firms have an inherent "born-regional" approach. Our findings align with this study by confirming that businesses originating from Colombia, Argentina, or Chile follow a similar path towards global expansion rather than limiting themselves to domestic operations. This reinforces the notion that early internationalization can prove vital for startup success in today's world marked by rapid globalization [80].

Upon analyzing the case of Brazil in-depth, it can be observed that there is a diverse range of opinions regarding barriers to internationalization. Some companies believe that entering foreign markets presents no significant obstacles [81]. However, the majority of Brazilian firms involved in our study reported encountering institutional and organizational hurdles that impede their ability to expand globally. Despite these obstacles, it is apparent that most Brazilian startups adopt a cautious approach to internationalization.

Comparing our findings with those obtained by other studies shows a noteworthy similarity: most companies do not prioritize rapid internationalization as they concentrate on catering to local markets during the initial phases. Nevertheless, despite this common strategy, it was elucidated that pressure from investors seeking quick returns may lead many startups towards earlier expansion at regional or global levels.

It is important to highlight how emerging economies such as Brazil face unique challenges with international business ventures compared to developed nations due to issues related to legal frameworks and political risk factors making its own set of opportunities present for entrepreneurs who are addressing these impediments creatively and effectively alongside supportive ecosystems which provide resources like access capital, mentorship programs, and networking opportunities [82]. The barriers to internationalization faced by startups from Latin America, particularly Brazil, are multifaceted and complex [83].

Results are consistent with [84], to the extent that internationalization has a positive effect on business performance, although it should also be noted that the relationship can become negative if internationalization is concentrated in two countries. These findings raise the question that effective startup internationalization requires internationalization in several countries at the same time.

For some of the countries in the sample (Argentina, Colombia, Chile), the results obtained seem to have similarities with the theoretical approach proposed by [85], to the effect that going to foreign markets is an action motivated by entrepreneurship. This approach proposed by the author constitutes a new perspective on the Uppsala model of internationalization, which could be a new prism for analyzing the factors that cause entrepreneurs in smaller markets to seek a faster exit to other markets.

Although the article presents new evidence on the internationalization processes of Latin American startups, there are issues that should be addressed in future studies, such as the fact that even when working with technology-based startups, the results are not fully aligned with [86], in the sense that a large part of the study sample (Brazilian startups) does not seem to have a special interest in actively taking advantage of the benefits of globalization. Overall, the internationalization strategy of technology startups from Latin America is a complex and under-researched phenomenon that requires further investigation.

6. Conclusions

The process of internationalization for startups in Latin America is becoming increasingly important due to its ability to generate competitive advantages for the new ventures. Despite the risks involved, born global and born regional firms are emerging as a trend in Latin America.

Venture capital entities in the region have been noted to modulate the magnitude and timing of investments in response to the perceived political hazard risks and the nuances of a country's legal framework. Furthermore, incentives are being extended to facilitate the international expansion of SMEs, with the aim of enhancing competitiveness and fostering growth in constrained market environments.

In summary, the article meticulously analyzed the paths to internationalization undertaken by Latin American technology startups. Discerning these trajectories provides critical perspectives for entrepreneurs, policymakers, and organizations, aiding in the optimal allocation of resources to facilitate successful global strategies.

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