Platform economy in South America: the case of Chile, Argentina and Uruguay

Economía de plataformas en Sudamérica: el caso de Chile, Argentina y Uruguay

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Abstract: Digital platforms have reshaped traditional business landscapes and transformed business ecosystems globally, especially through the facilitation of online trade and access to different digital services. The platform economy emerges as an economic model in which platform companies play a dominant role in current economic and social activity as main intermediaries in facilitating interactions and transactions between different groups of users. This study explores the dynamics of the platform economy in Chile, Argentina, and Uruguay using data from the Digital Platform Economy Index (DPE Index) 2020. Chile, Argentina, and Uruguay are developed South American economies that have demonstrated a great competitive capacity for digital entrepreneurship. The study also analyzes the relative position of these countries in Latin America and globally. The findings highlight different configurations of economies. On the one hand, Chile, Argentina and Uruguay share a strong digital rights scheme, but they face particular difficulties. Chile grapples with low digital literacy among its citizens, Argentina faces barriers in financial facilitation, and Uruguay lags behind in digital freedom. This study also offers practical recommendations for public policies aimed at addressing country-specific weaknesses and strengthening the digital ecosystem in each case.

Keywords: digital platforms, platform economy, entrepreneurial ecosystems, digital platform economy index, South America

Resumen: Las plataformas digitales han reconfigurado los panoramas empresariales tradicionales y transformado los ecosistemas empresariales a nivel mundial especialmente a través de la facilitación del comercio en línea y el acceso a la banca digital. La economía de plataformas surge como un modelo económico en el que las empresas de plataforma desempeñan un papel dominante en la actividad económica y social actual como principales intermediarios en la facilitación de interacciones y transacciones entre diferentes grupos de usuarios. Por esta razón, es vital avanzar en nuestra comprensión del estado de la economía de las plataformas digitales para promover el emprendimiento y desarrollo económico. Este estudio explora la dinámica de la economía de plataformas en Chile, Argentina y Uruguay utilizando datos del Índice de Economía de Plataformas Digitales (Índice DPE) 2020. Chile, Argentina y Uruguay son las tres economías desarrolladas de América del Sur que han demostrado una gran capacidad competitiva para el emprendimiento digital. El estudio

también analiza la posición relativa de estos países en América Latina y a nivel mundial. Los hallazgos destacan configuraciones de economías distintas. Por un lado, Chile, Argentina y Uruguay comparten un sólido esquema de derechos digitales, pero enfrentan dificultades particulares. Chile lidia con una baja alfabetización digital entre sus ciudadanos, Argentina enfrenta barreras en la facilitación financiera y Uruguay está rezagado en libertad digital. Este estudio también ofrece recomendaciones prácticas para políticas públicas orientadas a abordar las debilidades específicas de cada país y fortalecer el ecosistema digital en cada caso.

Palabras clave: plataformas digitales, economía de plataformas, ecosistemas de emprendimiento, índice de economía de plataformas Digitales, Sudamérica de recursos, políticas organizacionales de conciliación trabajo-vida, actitudes laborales

1. Introduction

Digital platforms have revolutionized traditional business models with their ability to connect supply and demand, reduce transaction costs, and increase operational efficiency through network effects. This has allowed traditional companies to link to new markets, integrate into e-commerce or the global financial system through FinTech. In this context, Platform-based companies have emerged as a key force in the "creative construction" of platform-based ecosystems. Unlike regional ecosystems that are managed by governments, the rules and governance in platform ecosystems, which are global in nature, are set by the owners of the companies that control such platforms. Unlike regional ecosystems that are managed by governments, the rules and governance in platform ecosystems, which are global in nature, are set by the owners of the companies that control such platforms.

In order to understand and measure the capacity of a country or region to promote entrepreneurship, during the last decades, the concept of entrepreneurship ecosystems has been used (Cavallo et al., 2019). However, the rapid development and wide availability of digital technologies in today's digital era have revolutionized the business landscape, giving rise to the emergence of new actors (users and agents) and factors (infrastructure and digital platforms) relevant to the development of entrepreneurship (Hair et al., 2012; Kraus et al., 2019; Hu et al., 2024; Sahut, Iandoli & Teulon, 2021). Sussan and Acs (2017) were among the first to recognize that these new actors determine the entrepreneurship ecosystem in a novel way and therefore proposed a new conceptual framework, also known as the Digital Entrepreneurship Ecosystem (DEE), to study entrepreneurship in the digital age by integrating two well-established concepts: the digital ecosystem and the entrepreneurial ecosystem. The application of emerging technologies such as big data, new algorithms, and cloud computing is giving rise to a global digital platform economy, built around platform companies. Based on theoretical advances in digital ecosystems and entrepreneurship ecosystems, and in order to measure the size of this digital platform economy, Szerb et al. (2022) have developed the Digital Platform Economy Index (DPE).

The DPE Index framework includes 12 pillars that integrate the digital and business ecosystems. The DPE data are of interest because they can facilitate effective policymaking as they provide details on the performance of 12 aspects of a country's platform economy. It allows the identification of the weakest-performing element (the system bottleneck) and, as the index has been calculated for 116 countries, also makes the comparison among economies possible. The DPE has been an important source of data for research that analyze the state of platform economies in Europe (Acs, 2022; Wibisono, 2023). DPE data have also been used in the construction of other indicators, such as the Asian Index of Digital Entrepreneurship Systems (Autio et al., 2021).

In this article, we present an analysis of platform economy profiles at the national level in three South American countries: Chile, Argentina, and Uruguay, using data from the DPE. We have selected these three economies because they are comparable in terms of economic development (very high human development, similar GDP per capita, and geographical proximity) and because of the growing potential for digital entrepreneurship in these countries (Andonova et al., 2023; Chamas & Caldart, 2019; Katz & Callorda, 2018). Specifically, this study sought to address the following research questions:

What are the strengths and weaknesses of the platform economy in Chile, Argentina, and Uruguay? How competitive is the platform economy in Chile, Argentina, and Uruguay compared globally? How can the platform economy be improved in Chile, Argentina, and Uruguay? This article is divided into four parts: the first part provides a background on the essential links between digital platforms and entrepreneurship development, and it presents the current status of digital entrepreneurship in the selected countries. The second section presents details about the method (DPE Index), the third section discusses the main findings of the study, and the fourth section offers policy recommendations contextualized to each country's results according to the DPE, the conclusions are summarized in the last section.

2. Literature Review

2.1. Digital platforms, platform economy, and entrepreneurship development

Digital platforms have radically transformed traditional business models by facilitating interaction between users, reducing transaction costs, and enabling value creation through network and network effects. These platforms, among other functions, connect supply and demand in a digital environment, eliminating physical barriers and increasing operational efficiency. This has allowed traditional companies to adapt to new markets and business models, such as the use of ride-sharing or e-commerce platforms or integration into the global financial system through FinTech companies (Da Silva & Núñez Reyes, 2021). In their study on the increased centrality of platforms in the modern economy, Kenney et al. (2021) identified that 70% of U.S. service industries, representing more than 5.2 million establishments, are potentially influenced by one or more platforms.

The Platform economy plays a crucial role in this context. It is an economic model in which digital platform companies, such as Google, PayPal, Amazon or Taobao, act as intermediaries that facilitate transactions and relationships between multiple actors (Evans, 2016) and in this way transform industries, labor markets, global trade, development, or local modernization (Chu et al., 2023; Xue et al., 2020). Although it has also generated debates on labor rights and power regulation (Cutolo & Kenney, 2021; Davies et al., 2023; Muntaner, 2018), it is observed that "over the years, firms able to create a platform-based ecosystem have become a force of "creative construction" (Acs et al., 2021, p. 1629). Due to the global nature of the platform economy, the owners of the companies that manage the platforms play a dominant role in the governance of digital entrepreneurship ecosystems. Unlike regional entrepreneurship ecosystems, in a digital ecosystem, rules about who can access the platform and rules of good behavior are determined by the businesses owners that run the platforms (Nambisan, 2017; Sussan & Acs, 2017).

Digital platforms are key catalysts for developing digital entrepreneurship ecosystems, promoting collaboration, facilitating access to markets and resources, and fostering innovation. However, the ability to sustain a platform economy varies globally. While B2C platform companies in the US and China lead the sector through network effects and advanced technologies, Europe is still lagging behind, although it has the potential to leverage its industrial strengths by integrating data-driven activities (Acs et al., 2021; Posselt et al., 2020). The platform economy in Europe shows growth: 4.3% of working-age adults currently work in this sector (Piasna et al., 2022). In Latin America, the advance of the digital economy is still at an early stage. Despite public policies aimed at strengthening technological adoption, the region has not achieved a dynamic and sustained process, what is reflected in the low presence of unicorn companies based on collaborative platforms (Katz, 2015). However, the region has a young population and an accessible cost structure, factors that, together with favorable policies, can position it not only as a consumer market, but also as a center of digital entrepreneurship. Examples such as

Cumplo (Chile) and Mercado Libre (Argentina) demonstrate the potential for the development of successful initiatives in the collaborative economy (Buenadicha et al., 2017).

2.2. Digital development in Chile, Argentina and Uruguay

In recent years, Chile, Argentina, and Uruguay have strengthened their digital capabilities and show growing potential for digital entrepreneurship. Since 2019, Chile, Argentina, and Uruguay have been in an intermediate stage of digital readiness. It means that their economies have made progress in fundamental areas, including the provision of basic needs and the development of human capital. Consequently, there's a high potential for efficient acceleration based on investment in areas related to the ease of doing business (CISCO, 2023).

In terms of digital entrepreneurship, Chile has a vibrant start-up ecosystem (Espinoza et al., 2019) with an increasing number of digital entrepreneurs and high-growth companies. There are 23 unicorn companies in South America, from which 2 are Chilean: NotCo (Retailer) and BetterFly (Technology Company). Likewise, Uruguay stands out as one of the best countries for startups in Latin America due to its relative political stability, government efforts in digital transformation, and knowledge creation (StartupBlink, 2020). Government-led initiatives such as "Uruguay Digital 2020" and "Digital Agenda 2025" and their highly collaborative entrepreneurial ecosystem are also notable (Tedesco et al., 2020).

Argentina is a country with very high levels of e-government development and high levels of online service delivery. This nation has also made progress in aspects such as digital government strategy, cybersecurity legislation, personal data protection, national data policy, open government data, and electronic participation. Therefore, people and companies can interact with public institutions through online platforms, obtain information on legislation related to freedom of information, and access to public content and data (OECD, 2019). It is important to highlight that, although public policies have not been consistent (Finchelstein, 2017), the entrepreneurial ecosystem in Argentina is vibrant with a growing number of digital platforms with international reach such as Mercado Libre, and unicorn firms such as Etermax (digital games) and Ualá (Fintech).

The phenomenon of digitalization and its effect on business and economy in Latin America has been a topic of interest for the main regional organizations. The IDB Lab has been actively involved in studies that emphasize the role of digitalization in the transformation of industries. Their reports explore how digital tools can close gaps in access to financial services and support the growth of small and medium-sized enterprises (SMEs) by connecting them to the global market (Zhang, 2023). Likewise, the Development Bank of Latin America (CAF) has consistently highlighted the transformative impact of digitalization and entrepreneurship in the region. CAF provides financial sources to countries in the region (CAF, 2024b) and organizes Financial Inclusion Laboratories to promote digital solutions based on artificial intelligence for the financial inclusion of vulnerable groups and SMEs, among others (CAF, 2024a).

3. Materials and method

3.1 Digital Platform Economy Index -DPE

Currently, there are several tools to assess the quality of digital and entrepreneurship ecosystems, such as the Digital Intelligence Index (DII), the European Digital City Index (EDCi) and the Global Entrepreneurship Index (GEI). As for digital entrepreneurship ecosystems, the Index of Digital Entrepreneurship Systems (EIDES) stands out. However, the only index

that specifically measures the size of the platform economy at the national level is the Digital Platform Economy (DPE). This index, applied in 116 countries (including most of South American countries), was chosen for this study because of its focus on the detailed analysis of digital platforms in each country.

The structure of the DPE encompasses four key concepts to build a sustainable platform economy: Digital Technology Infrastructure (DTI), Digital User Citizenship (DUC), Digital Multi-sided Platform (DMP) and Digital Technology Entrepreneurship (DTE). DTI refers to coordination to establish institutional standards in the digital realm. DUC "addresses the explicit legitimization and implicit social norms that enable users to participate in digital society" (Sussan & Acs, 2017, p. 64). DMP serves as an "intermediary for [the] transaction of goods and services, and also [as] a medium for knowledge exchange that enables and facilitates experimentation, entrepreneurial innovation, and value creation" (Song, 2019, p. 4), while DTE includes "various external agents involved in experimentation, business innovation, and value creation using hardware/software to build products that connect to platforms" (Song, 2019, p. 9). On this basis, as shown in Table 1, the DPE is a composite index that operationalizes the concept of DPE in a multilevel structure comprising four sub-indices, each of which consists of three pillars that combine two types of variables: one that represents the Entrepreneurship Ecosystem (Institutions and Agents) and another that represents the Digital Ecosystem (Digital Technology and Users).

The data for this study comes from DPE database 2020 by the Global Entrepreneurship and Development Institute (GEDI). This database collects information on the twelve pillars of the DPE index and provides values at the pillar, sub-index, and super-index levels, called the Digital Platform Economy Index. Table 2 presents the definition of each of the twelve pillars of the DPE index.

The DPE is structured in five levels: indicators, variables, pillars, sub-indices, and the super index. The super index, known as the DPE Index, consists of four sub-indices representing different frameworks, and 12 pillars constitute the main components of the model. These pillars are divided into two categories: one for the digital ecosystem (digital technology and users) and the other for the entrepreneurial ecosystem (institutions and agents). Together, the 24 variables (12 for the digital ecosystem and 12 for the entrepreneurial ecosystem) are based on 61 indicators, which are the fundamental building blocks of the DPE Index. The interaction between the digital and entrepreneurial ecosystems is expressed through the multiplication of the two corresponding components.

To assess the pillars in 116 countries, the normalized averages of these 12 pillars are calculated, ranging from 0.153 (matchmaking) to 0.525 (digital rights), with an overall average of 0.361. Due to the variations in effort and resources needed to improve different pillars, the direct application of these values to public policy is challenging. The methodology for adjusting pillars proposed by Ács et al. (2014) addresses this problem, although it does not solve it completely.

To mitigate disparities, the "Penalty for Bottleneck "(PFB) methodology is applied. This method focuses on the lowest-performing pillar in a country's digital entrepreneurship system, known as the "bottleneck." Bottlenecks are crucial for public policy due to the systemic nature of DEE, where pillars influence each other. The goal is to equalize pillar scores, as a balanced system indicates optimal use of resources. When the weakest pillar is improved, the DPE Index experiences a significant overall improvement. The penalty function is defined as follows:

$$\mathrm{DPE\_penalized}_{(i),j} = 100 * \min \mathrm{DPE\_pillar(equal)}_{(i),j} + \left(1 - e^{-\left(y_{(i)j} - \min \mathrm{DPE\_pillar(equal)}_{(i),j}\right)}\right)$$

Where:

DPE _ penalized i, j is the modified, post-penalty value of the pillar j in country i.

DPE _ pillar(equal) i, j is the normalized value of the index component j in country i.

DPE _ pillar(equal) min is the lowest value of yi, j for country i.

i = 1, 2,..... 116 = the number of countries.

j = 1, 2,..... 12 = the number of pillars.

Multiplication by 100 is purely practical to get a scale of 0-100 points instead of a range of 0-1. Finally, the final score of the DPE Index is calculated by taking the arithmetic average of the scores of the four sub-indices.

Table 1: *DPE Index Structure*

	Sub-Indices	Pillars	Variables (entrepreneurship/digital)
GLOBAL ENTREPRENEURSHIP INDEX	Digital Technology Infrastructure	Digital Access	Digital Access Institutions
			Digital Access
			Digital technology
		Digital freedom	Digital freedom institutions
			Digital freedom
			Digital technology
		Digital protection	Digital protection institutions
			Digital protection
			Digital technology
	Digital User Citizenship	Digital Literacy	Digital literacy institutions
			Digital literacy users
		Digital openness	Digital openness institutions
			Digital openness
			Digital technology
		Digital rights	Digital Rights Institutions
			Digital rights
			Digital technology
	Digital Multi-sided Platform	Networking	Network Agents
			Network Users
		Matchmaking	Matchmaking Agents
			Matchmaking Users
		Financial facilitation	Financial facilitation agents
			Financial facilitation users
	Digital Technology Entrepreneurship	Digital adoption	Digital adoption agents
			Digital adoption
			Digital technology
		Technology absorption	Technology absorption agents
			Technology absorption
			Digital technology
		Technology transfer	Technology transfer agents
			Technology transfer
			Digital technology

Note: the variables of the entrepreneurship ecosystem are on a white background, while those of the digital ecosystem are on a gray background. Source: Szerb et al. (2022, p.9).

Table 2: *Description of the pillars of the DPE*

Pillar	Description
Digital access	Digital access refers to the level of access that the population has to digital infrastructure, including computers, laptops, mobile phones, and the internet.
Digital freedom	Digital freedom reflects how much freedom a government and its institutions provide in the development of digital infrastructure.
Digital protection	Digital protection captures the extent to which laws and regulations protect users from hacking and cybercrime.
Digital literacy	Digital literacy aims to measure citizens' ability to use computers, digital infrastructure, and digital platforms.
Digital openness	Digital openness reflects the way a country's institutions support the reach and use of digital infrastructure.
Digital rights	Digital rights reflect the human and legal rights that make it possible for citizens to use digital infrastructure, while protecting their privacy.
Networking	Networking measures the network and other external effects of the multi-sided platform.
Matchmaking	The matchmaking component aims to capture the platform's business models (i.e., how supply and demand or buyers and sellers interact with each other through the platform).
Financial facilitation	Financial facilitation refers to various aspects of finance that rely on digital technologies that drive matchmaking-related startups, make financial transactions over the internet possible, and provide platforms for financial service providers and users.
Digital adoption	Digital adoption reflects the core ability of entrepreneurial agents to use existing digital technologies.
Technology absorption	Technology absorption measures the extent to which entrepreneurial agents can absorb newly created digital technologies.
Technology transfer	Technology transfer identifies the level at which a country can disseminate new technologies.

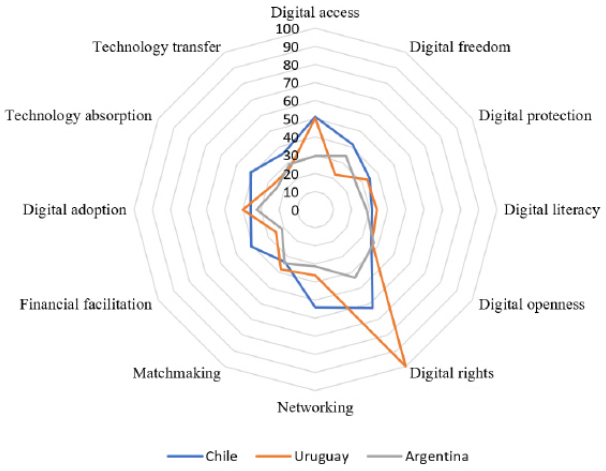
Note: own elaboration based on Szerb et al. (2022).

4. Results and discussion

4.1. Characteristics of the Platform Economy in Chile, Uruguay, and Argentina: Strengths and Weaknesses

Figure 1 shows the pillar-level values for the economies of Chile, Argentina, and Uruguay.

Figure 1: *Structure of the Platform Economy of Chile, Argentina, and Uruguay, 2020*



Note: own elaboration based on The Global Entrepreneurship and Development Institute-GEDI, 2020

As can be seen in the Figure 1, the pillar with the best performance in the Chilean platform economy is digital rights (DPE score 62.9). Chile's good performance may be due, on the one hand, to the adoption of a comprehensive data protection law (Law 19628 on the protection of privacy) from 2018. Chile was one of the first countries in Latin America to enact such laws to regulate the processing of personal data by public and private entities and grants individuals certain rights over their personal data. However, there are still demands from citizens for the incorporation of digital rights into Chilean legislation. For example, "Chile digital" is a popular citizen initiative that advocates for the inclusion of digital rights in the Chilean Constitution. On the other hand, the most severe bottleneck in the Chilean entrepreneurial ecosystem is Digital Literacy (DPE score 31.2). One of the factors contributing to the widespread digital skills deficiency among the Chilean population is the limited penetration of fixed broadband, particularly in rural areas. The lack of reliable internet connectivity in these regions exacerbates the problem, as many people in these areas do not have access to the necessary infrastructure, therefore lacking the skills needed to succeed in the digital world (Garda, 2021).

Similarly, the pillar with the best performance in the Platform economy in Argentina is that of digital rights (score 42.9). Argentina's good performance may be due, on the one hand, to the adoption of a comprehensive data protection law that regulates the processing of personal data by public and private entities and grants individuals certain rights over their personal data (OECD, 2019). On the other hand, the most severe bottleneck in the Argentinian entrepreneurial ecosystem is Financial Facilitation. One of the factors contributing to the widespread deficiency in financial facilitation is that the government does not contribute to covering the low private financing and does not coordinate the different sources of financing or align the programs. As a result, numerous transaction costs, such as duplication of efforts, information asymmetry between entrepreneurs and programs, and limited monitoring occur (United Nations, 2022).

Finally, as shown in figure 1, the best performing pillar of Uruguay's DPE is digital rights (score 100). The reasons for the high score could be due to the application of the Personal Data Protection Law 18331, 2008. Therefore, any institution or company that wishes to use personal information of third parties must have prior authorization.

Data protection also includes legal persons where necessary. Likewise, the law guarantees the right of the citizen to request changes and deletion of their personal data, as well as to interact with the State digitally and request information from the Government. On the other hand, the most critical bottleneck in the Uruguayan entrepreneurial ecosystem is Digital Freedom (DPE score 22.2) which can be attributed to the historical control of digital infrastructure by the state-owned company ANTEL since 1992. This monopoly was governed by the Media Law 19307, 2015. However, in 2022, the government amended Article 56 of the law, allowing the entry of five private operators to offer services in the country (Presidency of the Republic of Uruguay, 2023).

4.2. Chile, Argentina and Uruguay among Latin American economies

Table 3 shows that Chile is the leader (DPE index = 40.6) in Latin America. Chile is ahead of Uruguay (DPE index = 36.3), Argentina (DPE index = 30.4), and all other South American countries. The difference in scores between Chile and Uruguay is relatively narrow (4.3 points), while Argentina has a greater difference in score of 10.2 compared to Chile. These results are in line with previous studies that also positioned Chile and Uruguay as the regional leaders in the context of entrepreneurial ecosystems and digital ecosystems (Acs et al., 2022; Villegas-Mateos, 2021). Therefore, we confirm that the leadership position of these two countries is also evident in the context of digital entrepreneurial ecosystems.

Table 3: *Latin American Countries, DPE 2020*

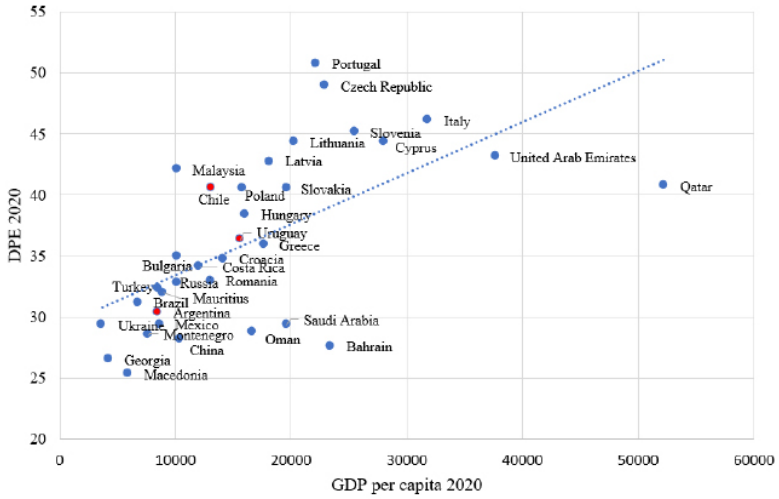
Country	DPE 2020	GDP per capita 2020, in current USD	DPE Global Ranking
Chile	40.6	13094	38
Uruguay	36.3	15619	42
Costa Rica	34.1	12132	47
Brazil	31.2	6794	52
Argentina	30.4	8496	53
Mexico	29.4	8655	54
Colombia	28.0	5307	60
Panama	28.0	12596	61
Peru	23.6	6056	75
Ecuador	21.3	5645	80
El Salvador	16.7	3903	94
Paraguay	15.6	5353	95
Guatemala	15.0	4604	96
Honduras	13.9	2354	99

Note. own elaboration based on the Global Entrepreneurship and Development Institute -GEDI, 2020 and World Bank, 2023.

4.3. Chile, Argentina and Uruguay among the "gainer" economies

Chile, Argentina, and Uruguay have been classified as "gainers" when it comes to the state of development of their platform economies. "gainer" economies are those that have good digital technologies and citizens who are active users of technology, but many aspects of their ecosystems still require considerable development (Szerb et al., 2022). Figure 2 shows the relationship between GDP per capita and the development of DEEs among the "Gainer" economies.

Figure 2: *DPE Gainer Economies and GDP per capita, 2020*



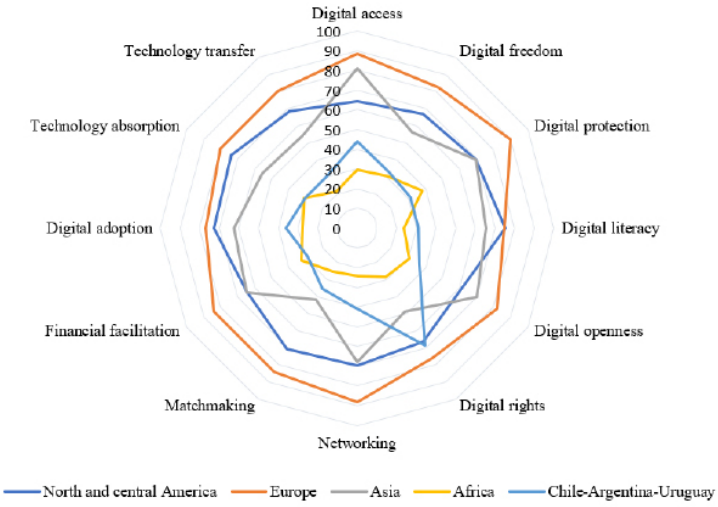
Notes. GDP per capita in current dollars. Own elaboration based on the Institute for Entrepreneurship and Global Development (GEDI), 2020.

Countries with higher GDP per capita tend to exhibit greater development of their platform economy, as shown by the trend in the scatter plot. The graph also reveals the existence of two groups of outliers. On the one hand, those countries with a relatively high GDP per capita and a low score in the DPE. Most of the countries within this category are the economies of the Middle East. On the other hand, Chile and Malaysia stand out as countries with a high DPE score and a relatively low GDP per capita. This configuration suggests that the Chilean economy, for example, is more efficient than other economies of similar size such as Costa Rica, Romania, or Croatia, because it performs better (i.e., it is more favorable for digital entrepreneurship) with the same level of resources. The performance of Chile's platform economy is potentially above the average level expected for the "igainer economies. The chart also shows Qatar, Oman, UEA, Saudi Arabia, and Bahrain from the Middle East as outliers. This could be attributed to the fact that its main source of GDP comes from the extraction and trade of oil and gas, which makes it difficult to establish a correlation between entrepreneurship and this economic activity.

4.4. Chile, Argentina, and Uruguay, among other continental leaders

In this section, we compare Chile, Argentina, and Uruguay with the top three leaders of the DPE in the Americas, Europe, Asia, and Africa. As seen in Figure 3, while Chile, Argentina, and Uruguay, on average, perform better than more developed African ecosystems, these South American leaders still lag behind leaders in Asia, North America, and Europe. The DPE methodology suggests that a healthy ecosystem is one with a balanced configuration, where all the factors of the ecosystem present a similar performance., As can be seen in Figure 3, South American ecosystems are relatively unbalanced because there are large differences between, for example, digital rights and financial facilitation.

Figure 3: *Chile, Argentina, Uruguay, and continental leaders by DPE pillars, 2020*



Notes. North and Central America is the average for the United States, Canada, and Costa Rica; Europe is the average for the United Kingdom, the Netherlands, and Sweden; Asia is the average for Hong Kong, Japan, and Korea; Africa is the average for Mauritania, South Africa, and Morocco. Own elaboration based on Institute of Entrepreneurship and Global Development-GEDI, 2020.

Europe stands out as a leader, demonstrating balanced performance and scoring high on most pillars. Its high performance in Digital Protection is possibly due to the rigorous regulatory frameworks such as the General Data Protection Regulation (GDPR) that prioritize the privacy of citizens' personal data in the European Union (GDPR.eu, 2018) . On the

other hand, the European Union has implemented several digital transformation initiatives that have shown improvements in the digital capabilities of human resources, greater connectivity, better integration of digital technology in business and e-commerce and digital public services in recent years (European Commission, 2022). North and Central America show balanced performance, with strong scores in digital literacy and technology absorption. The United States and Canada have advanced digital ecosystems that have proven to be well-prepared to support the success of platform companies with global reach, accounting for 90% of the 371 million global monthly users. (DinarStandard, 2023). Chile-Argentina-Uruguay shows moderate scores across the spectrum of the digital economy. These countries benefit from extensive digital rights that even surpass the levels of Asia and North and Central America in this pillar. However, financial facilitation remains a limitation. This could be explained by the fact that, despite some improvements recorded in the region in recent years, it is widely known that in Latin America, SMEs still have limited access to financing and face less favorable conditions and higher costs compared to large companies.(OECD/ECLAC 2012). On the other hand, it is known that in Latin America, there is a need to improve the supply of financial products and services, as modern crowdfunding mechanisms remain in their early stages in the region. Additionally, there are few strategies to effectively promote financial education among SMEs and entrepreneurs, which would help increase trust and the adoption of these financial schemes (OECD/CAF/SELA, 2024).

Overall, our results align with other studies that have investigated the characteristics (and drivers) of the digital ecosystem in Latin America. Acs et al. (2022) identified differences in Latin American digital ecosystems compared to those in more developed economies such as the U.S. and Canada. Specifically, they point out that although Latin America is making progress in digital technology infrastructure, the lack of clear data protection regulations, limited support from both the private and public sectors, lack of coordination, and restricted access to human talent hinder the development of digital entrepreneurship in the region. Similarly, a study by Katz and Callorda (2018) reveals that while support ecosystems for digital entrepreneurship in Latin America have improved, they are still in an early stage.

5. Policy recommendations

The DPE covers 12 areas (pillars) of the digital entrepreneurship ecosystem. Each country has one or more critical areas that hinder the ecosystem, acting as bottlenecks within the system. According to the DPE methodology, the best way to enhance ecosystem performance is by reducing disparities between pillars, strengthening the weakest ones first. Following this logic, here are some proposed strategies for policymakers and entrepreneurs in each country.

5.1. Chile

The main bottleneck in Chile's digital entrepreneurship ecosystem is *digital literacy*. To address this, policy interventions should focus on developing digital literacy programs tailored to the needs of entrepreneurs. This involves establishing incubation centers that provide mentorship and digital education programs. Additionally, fostering collaboration between entrepreneurs and universities can help bridge knowledge gaps. Continuous financial and logistical support is crucial for entrepreneurs to update their digital skills. In this regard, entrepreneurs are encouraged to invest in continuous education, particularly by exploring low-cost or free online resources, such as Massive Open Online Courses (MOOCs). Engaging in local associations and university incubators offers valuable opportunities for digital education. Participation in public digital skills programs, such as the "Zero Digital Divide Plan 2022-2025" (Plan Brecha Digital Cero 2022-2025) and the "National Digital Languages Plan" (Plan Nacional de Lenguajes Digitales), can further enhance their capabilities.

Once the main bottleneck is addressed, efforts should focus on improving *matchmaking capacity*. The Chilean government recognizes the importance of digital platforms as a driving force for the country's economy and has implemented various

programs to promote their use and facilitate interactions between sellers and buyers. Government initiatives such as Start-Up Chile create a favorable environment for the growth of digital platforms, enabling better connections between supply and demand and promoting e-commerce. Similarly, the Corporación de Fomento de la Producción (Corfo) promotes the innovation ecosystem by providing funding and guidance for technology platforms that connect consumers with providers of goods and services, aiming to boost the digital market. However, our findings indicate that these efforts have not been entirely effective in enhancing interaction between platform participants. Interestingly, improvements in digital literacy can also have a positive impact on strengthening matchmaking capacity. It is essential to promote government initiatives such as large-scale and personalized in-person training programs in community centers, easily accessible free online courses tailored to different knowledge levels, and mentorship programs that help connect buyers with purchasing relationships through digital platforms.

5.2. Argentina

In Argentina, the main bottleneck is *financial facilitation*. The Argentinian government has implemented various programs to provide funding and subsidies aimed at facilitating the technological adoption of businesses, such as the Tax Credit Program for Technological Training and initiatives by the Ministry of Productive Development, which offers financing for the adoption of new technologies through the Argentine Technological Fund (FONTAR). However, the findings of this study indicate that these efforts have not been sufficient. On the other hand, entrepreneurs can seek to connect with other ecosystem players, including businesses, research institutions, government agencies, incubators, and accelerators. These connections can provide mentorship and access to both early-stage financing and technological absorption. Strategic partnerships can help mitigate individual risks and foster a more favorable environment for innovation.

Regarding the second bottleneck, technological absorption, the Argentine government's efforts to improve indicators in this pillar have been significant. Programs such as "Digital Argentine Plan" (Plan Argentina Digital) and "SMEs Experts" (Expertos PyME) aim not only to expand broadband internet coverage but also to advise small businesses on using technology to enhance efficiency. These initiatives are complemented by the "Argentina Programs" (Argentina Programa) initiative, which trains individuals in programming and digital skills to integrate into the technology job market. According to the findings of this study, despite the efforts made by the Argentine government, entrepreneurs continue to face challenges in technological absorption. Therefore, it is recommended to establish a monitoring and evaluation team composed of representatives from the government, universities, research centers, and the private sector. This team would be responsible for continuously assessing the impact of technological absorption programs and adjusting strategies based on performance data.

5.3 Uruguay

The main bottleneck in Uruguay's system is *digital freedom*. Policy interventions should focus on ensuring compliance with the amendments to Law No. 19307 of 2015 to guarantee the democratization of digital infrastructure and press freedom. Ensuring affordable and widespread internet access, particularly in rural and underserved areas, is crucial. Additionally, promoting open data policies can provide entrepreneurs with access to government data, enabling them to develop innovative solutions and services. Allocating resources for education and training initiatives is essential to fostering a skilled workforce capable of attracting foreign investors in digital infrastructure. Entrepreneurs, in turn, can collaborate with government officials to identify areas needing improvement and design joint plans to enhance digital infrastructure. Engaging in initiatives aimed at expanding internet connectivity and adopting advanced technologies can help overcome existing challenges.

Regarding *financial facilitation*, although the Uruguayan government has implemented financial facilitation programs aimed at improving access for entrepreneurs and SMEs (ANII, 2023), authorities must make greater efforts to expand financial inclusion. While resources are available, it is necessary to analyze the factors that hinder access to credit for digital entrepreneurs. Therefore, it is imperative to review and, if necessary, restructure existing policies by considering interest rates, collateral requirements, repayment periods, and loan amounts to design customized credit portfolios tailored to entrepreneurs' needs. As for financial facilitation, entrepreneurs must pay particular attention to meeting their financial obligations to avoid negative credit history reports. Training through courses that help them plan their credit repayment strategies should be considered a necessary step.

6. Conclusions

This study analyzes the conditions for the development of the digital platform economy in Chile, Argentina, and Uruguay, focusing on their opportunities and challenges. Although all three countries have strong digital rights frameworks that can drive entrepreneurship, they face limitations in different areas: digital literacy and matchmaking in Chile; financial facilitation and technological absorption in Argentina; and digital freedom and financial facilitation in Uruguay.

The analysis also shows that these countries are among the most advanced platform economies in Latin America, with Chile standing out for its efficiency among similarly developed nations. However, compared to global leaders in the digital sector, they still have areas for improvement, particularly when measured against North American, European, and Asian countries.

This study highlights the importance of designing policies tailored to the specific needs of each ecosystem rather than applying generic investments. The recommendation is to prioritize addressing the bottlenecks that limit each country's development, as investing in non-critical areas is less effective if the minimum conditions in key areas are not met.

The study's limitations include the temporality of the data, which is focused on the year 2020 and may not fully reflect the current state of the platform economy, especially considering China's advancements in this field. For future research, it is suggested to use more recent data and expand the analysis to other South American countries, such as Brazil, which has demonstrated strong digital competitiveness. This would provide a broader perspective on the region.

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