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*Start-ups, Gender Disparities, and the Fintech Revolution in Latin America*

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**\*\* Work in Progress. Please do not quote without authors' permission\*\***

**\*\*\*Forthcoming Almaraz & Montiel "Handbook of Entrepreneurship in Latin America",  
Emerald \*\*\***

**ABSTRACT**

This chapter considers the process of entrepreneurial activity to deploy financial technologies (fintech) through mandate-specific new companies in Latin America. We deal with important historical issues such as defining the term, establishing temporal and industrial activity boundaries, positioning this particular process within other organizational forms typical of the region, the role of women and other relevant issues such as the modernization of retail payments and personal lending. A central question is whether fintech start-ups have had a 'scissor' effect in the entrepreneurial process of Latin America: at the base of the pyramid (that is, reducing frictions to support overall entrepreneurial activity, increasing financial inclusion, etc.) and near the top (by creating new business leaders). As a result, this chapter provides an initial assessment of gender disparities and barriers enabling women entrepreneurs in the fintech ecosystem.

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# 1 INTRODUCTION

The idea of applying technology as an instrument of organizational and competitive transformation in financial markets and institutions has been around since the adoption of early electromechanical and computer technology throughout the 20<sup>th</sup> century (Arner, Barberis and Buckley, 2015; Báltiz-Lazo and Wood, 2002; Báltiz-Lazo, Maixé-Altés and Thomes, 2011; Buckley, 2016). The term “financial technology”, however, has been used in several ways. In 1964, for instance, Hans Austricht mentioned it as a set of practices to manage risk at the International Monetary Fund but unrelated to technology.<sup>2</sup> In the 1970s, there are sources where concept is used related to the application of computer technology in finance (Schueffel, 2016, p. 36). For instance, Arthur F. Burns (1904-1987), then chairman of the Federal Reserve Board, used “financial technology” to describe: “the application of computers to cash management in industry”.<sup>3</sup> By 1984, we see the emergence of its acronym (FinTech, Fintech or fintech) and the term already encompassing “the business and financial impact of technological change internationally –the money, the markets, investment, productivity and practical applications-”.<sup>4</sup>

In 1995, Bill Gates, then at the helm of Microsoft, famously compared banks to dinosaurs as technology would bring them to their knees.<sup>5</sup> But it is really until 2012 when the concept and acronym take-off while associated with new entrants using applications of information and communication technologies to contest retail financial services (Bussmann, 2017, p. 473).<sup>6</sup> Growth of fintech throughout the 2010s and into the 2020s reflected how it captured the attention of entrepreneurs, regulators, investors, and policy makers; while it

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<sup>2</sup> Auficht, H. (1964) *The International Monetary Fund. Legal Bases, Structures, Functions*. New York, F. A.: Praeger. Source: Thether, G. (1964) “The I.M.F.”, *Financial Times* Nov 23, 1964, p. 14.

<sup>3</sup> “Warning from the Fed”, *Financial Times* May 4, 1976, p. 18.

<sup>4</sup> “How can you keep an eye on the business impact of new technology: FinTech”, *Financial Times* Apr 28, 1984, p. 4.

<sup>5</sup> “Is Microsoft's Bill Gates right when he says banks are technology”, *American Banker*, Jan 9, 1995. <https://www.americanbanker.com/news/is-microsofts-bill-gates-right-when-he-says-banks-are-technology> (accessed June 9, 2021).

<sup>6</sup> Google N-Gram Viewer, [https://books.google.com/ngrams/graph?content=fintech&year\\_start=2010&year\\_end=2019&corpus=26&smoothing=3&direct\\_url=t1%3B%2Cfintech%3B%2Cc0](https://books.google.com/ngrams/graph?content=fintech&year_start=2010&year_end=2019&corpus=26&smoothing=3&direct_url=t1%3B%2Cfintech%3B%2Cc0) (accessed June 8, 2021). Note that neither Fintech nor financial technology had been added to the Oxford English Dictionary at the time of writing.

became a big umbrella concept to encompass a diverse set of activities including (but not limited by) crowdfunding, digital payments, digital banks, big data, blockchain<sup>7</sup>, peer to peer (p2p) lending, crypto currencies, artificial intelligence, smart contracts, insurance, regulation, education, sustainability, and so on. As the decade progressed and particularly since 2015, an increasing number of fintech start-ups appeared in the developing countries such as India, Singapore, and Indonesia.<sup>8</sup> In Latin America the creation of such firms has been particularly active in Argentina, Brazil, Chile, Colombia, and Mexico.<sup>9</sup> According to Statista.com, the number of venture capital deals in this region was 34 in 2014, growing an average of 21 deals per annum to 139 in 2019. The same source reported that in 2020, \$1,977 million dollars of venture capital were invested in Brazil, \$567 million in Mexico, \$210 in Uruguay, \$187 in Colombia, \$25 million in Chile, and \$6 million in each Argentina and Ecuador.

Worthy of note is that many, if not most, of Latin-American fintech start-ups buy into the so-called “social entrepreneurship narrative” or the logic of applying technology to business models that can simultaneously address social problems while making profits (Natalie, 2020). This as Latin American start-ups often associate with the aim of improving the access to financial markets for unbanked individuals and small and medium enterprises (SMEs) (IDB, IDB Invest and Finnovista, 2018; Berkmen, Beaton, Gershenson, Arze del Granado, Ishi, Kim, Kopp, and Rousset, 2019). Evidence has yet to emerge, however, as to whether the “social” label of the Latin American fintech enterprise is followed with actions that have material social implications by redistributing some of these profits via improved public services, social infrastructure, or greater opportunities for social mobility.

Research in this chapter looks at these developments in more detail while, at the same time, questions the role of gender in entrepreneurship. Specifically, whether this new sector of activity has had any effect in reducing the gender gap in labor participation and entrepreneurship. Our hypothesis is that fintech has had a 'scissor' effect: on the one hand, at

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<sup>7</sup> For an explanation about how blockchain works, see Bussmann (2017).

<sup>8</sup> See Jain and Gabor (2020) for the digital financialization of India.

<sup>9</sup> We use ‘Latin America’, but most of our conclusions apply for Latin America and the Caribbean. For those unfamiliar with this sector, some of the most important fintech in the world at the time of writing include: Wealthfront, SoFi, Betterment, Ethos, Everledger, Stripe, TransferWise, Lufax, Opendoor, N26, Robinhood, Paytm, Coinbase, etc. In Latin America, Mercado Pago, Nubank, and Prisma stand out as large companies. If the readers want to meet the 250 largest fintech in the world in 2018, see Zamarripa and Sánchez Tello (2020).

the base of the pyramid while increasing financial inclusion. On the other hand, at the top of the pyramid by creating opportunities for new business leaders. Empirical support proceeds on a survey of employees and founder entrepreneurs to question whether and how the fintech ecosystem has (or has not) offered a levelled playing field for businesswomen to thrive. Specifically, we asked about the role of women in the fintech communities, how difficult it is for women to work in fintech and, their perceived challenges for women to be a fintech entrepreneur. Our interest is then to explore how users modify not the technology but the social context to achieve their entrepreneurial goals.

After the introduction, the remainder of this chapter contains three more sections. In the next section, we provide the methodology and sources used in this research based on semi-structured interviews with participants working in fintech start-ups and fintech founders in Argentina, Brazil, Chile, Mexico, Peru, and Uruguay. The third section offers a state of art review of entrepreneurship during the fintech revolution through an exhaustive bibliographical search. This review combines with results from interviews focusing on the challenges women face to work and/or become entrepreneurs in fintech. The final section advances tentative conclusions and possibilities for a future research agenda.

## **2 DATA AND METHODS**

It is beyond the scope of this article to provide a detailed, systematic, and comprehensive review of gender issues in entrepreneurship or women as part of the labor force in technology firms. These are nonetheless topics and themes which frame our enquiry. In this regard, in the early 21<sup>th</sup> century, there is a worldwide tendency for women entrepreneurship to be clustered around small or micro-business whilst looking for autonomy through self-employment. Indeed, a 2016 survey in OECD economies, reported that one in ten employed women was self-employed, almost half the rate of self-employed men (18%) (OECD, 2016). In the majority of countries surveyed, 70% or more of self-employed women worked in the service sector (while the share for men was around 50%), while women had this activity as their main source of income and seldom had a second job as self-employed.

A survey by Sansonetti (2004) in industrialized countries, reported that females in senior positions were more likely to have less children and greater share of household

responsibilities than their male pairs, as well as lower probabilities to reach top general management or strategic positions such as CEO or COO. This empirical evidence suggests that elite women in developed countries seem to face greater barriers than men to reach leadership positions.

Escobar Andrae (2021) notes that historical research at the end of the 19<sup>th</sup> century and more recent investigations both coincide in identifying lower than gender parity participation of Latin American women in entrepreneurship, particularly those coming from middle and upper economic and social echelons. This lack of parity is partly due to sociocultural contexts, social roles, and expectations, as well as their interaction with paid and unpaid (i. e., household) labor. Escobar Andrae (2021) reported that, in Latin America during the late 19<sup>th</sup> century, the higher the socio-economic position, greater income level, greater degree of education, and access to social networks, in short, the more likely a female was a part of the elite, the less likely she would be involved in self-employment or start-ventures. The same source suggested the same pattern seems to hold in the early 21<sup>st</sup> century.

Escobar Andrae (2021) further describes a sequence of barriers that women faced throughout the 20<sup>th</sup> century to achieve leadership positions as entrepreneurs. These mutated from “concrete walls” (such as outright prohibitions for women to access education or subjected their movement or financial resources to their male spouse), “glass ceilings” (which represent tactical limits for the progression of women, particularly in the workplace) and “labyrinths” (a wide range of subtle and implicit rules, explicit regulations, and social practices that act as effective barriers). In what follows we identify the nature of glass ceilings and labyrinths which raise the opportunity cost for greater participation of women in the Latin American fintech industry.

We adopted a mixed methods approach to explore the above trends in Latin American Fintech industry while offering a robust protocol for data collection and analysis (Tashakkori and Creswell, 2007). As a result, semi-structured interviews were used to complement and expand desk research, with the purpose of obtaining mutual viewpoints about similar experiences while using the interviews to elaborate and clarify on the knowledge gained from desk research (Caruth, 2013). This was an emergent mixed method as described by Plano Clark and Creswell (2018), as interviews were added as a secondary approach to data

collection, because it was felt that desk research was providing insufficient depth to answer questions on the challenges females face to become start-up fintech entrepreneurs in Latin America.

For desk research and as noted above, we used 2012 as the starting point of our search for any publicly available document dealing with fintech in Latin America. We note that the start date is somewhat arbitrary. Indeed, the decade following the 2008 financial crisis witnessed a surge in new fintech related solutions and start-ups with an increasing amount of funding going to these new enterprises.

Around 2015 or so, this phenomenon began to be called “the fintech revolution” (Mackenzie, 2015; Gomber, Kauffman, Parker and Weber, 2018; Chambers, Saleuddin and McMahon, 2019).<sup>10</sup> The Interamerican Development Bank (IDB) stated the nature of this transformation loud and clear: “Nearly two years ago [2016] we dared to suggest that the Fintech Revolution was here to stay. Today, we not only confirm our prediction; we emphasize the many opportunities that it offers” (IDB *et al.*, 2018, p. 6). The same source also pointed out that before 2013 there was no discussion about fintech in the region and neither were their recognizable industry associations or government programs aimed to support the deployment of fintech start-ups (IDB *et al.*, 2018, pp. 7-8). Thus, the growth and relevance that fintech start-ups have accomplished in Latin American was no more than 10 years old at the time of writing.

As it could be expected, there has been a wide range of sources showing interest around funding, acquisitions, or the economic potential of fintech start-ups. These include large financial institutions, payments processors (such as Visa and Mastercard), management consulting companies (namely KPMG, Accenture, Access Partnership, McKinsey, Capgemini, Ernst & Young (EY), and Deloitte), non-profit organization such as the Association for Private Capital Investment in Latin America (whose acronym in Spanish is LAVCA), supranational organizations (the International Monetary Fund (IMF), Interamerican Development Bank (IDB), Bank for International Settlements (BIS) and even

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<sup>10</sup> Revolution concept is a polemic term in Economic (and Business) History. For example, great academics have discussed the ‘revolutionary’ side of the (first) Industrial Revolution with no clear consensus about it. The revolutionary side of the fintech revolution also has provoked debate: see Harker (2017) and Skan and Eve (2021).

dedicated study centers such as the Cambridge Centre for Alternative Finance (CCAF) from the University of Cambridge.<sup>11</sup> From this corpus of contributions, between July 2020 and April 2021, we identified 40 publicly available documents dealing with the history of fintech (13 or 33%) or providing insights into Fintech entrepreneurship in Latin America (27 or 67%).<sup>12</sup>

We combined publicly available documents with semi-structured interviews, with the latter taking the lead in the exploratory sequential design (Plano Clark and Creswell, 2018). Following Brinkmann (2014), semi-structured interviews incorporated three elements during data-collection: i) a script that accorded to the variables we wanted to explore (mainly the role of communities of practice in the entrepreneurial process and the challenges women face to become fintech entrepreneurs); ii) allowing objectives to remain close to the research question that had been proposed as well as to the dimensions covered in the theoretical framework; iii) modifying the script according to the rhythm of the conversation, allowing the researcher/research subject to converge in an environment that may give rise to complications and/or dissonances.

Interaction with interviewees followed a strict protocol based on Ethics and Governance guidelines at Northumbria University (the employer of one of the members of the research team).<sup>13</sup> As a result, participants were offered to sign a consent form and provided oral explanations to grant their consent before starting to record the interview. The same Ethics and Governance guidelines required us to consider social distancing measures brought about by the Covid-19 pandemic. This and the significant geographical distance between participants led us to evaluate alternatives between the numerous options of internet mediated communication (Salmons, 2015). Ultimately, it was decided to conduct the

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<sup>11</sup> Relevant publications providing insights into entrepreneurship process and fintech include KPMG (2020, 2021); KoreFusion (2020); McKinsey & Co. (2020; 2021); Capgemini-EFMA (2020); EY (2017); Deloitte (2016). Others include Garrigues Digital (2018); Accuity (2018); Access Partnership (2021); CCAF (2016, 2018, 2020); EBANX Payments (2020) and from a local perspective see OMDIA (2020), LAVCA (2016), Finnovating (2020) or Mastercard (2020). Speculations as to the impact of the COVID-19 pandemic on consumer and business behaviors include McKinsey & Co. (2020, p. 2); Tut (2020); CCAF (2020); and ODF-Funcas and Finnovating (2019).

<sup>12</sup> Search encompassed public documents of the International Monetary Fund, World Bank, Interamerican Development Bank, Bank for International Settlements, and the following websites: <http://econpapers.repec.org>, [www.ssrn.com](http://www.ssrn.com), [www.researchgate.net](http://www.researchgate.net).

<sup>13</sup> <https://www.northumbria.ac.uk/research/ethics-and-governance/> (accessed June 11, 2021).



interviews online, through Microsoft Teams as this platform was provided by Northumbria University as well as being compliant with the UK's General Data Protection guidelines. Here, it must be acknowledged a key limitation of using online interviews is the lack of a physical presence from the researcher which may hamper the reading of physical cues or even have a negative effect on the degree of trust and disposition to sharing from interviewees (Sedgwick and Spiers, 2009). Despite this, online interviewing appeared to be the most appropriate approach to conduct the fieldwork. This approach ensured that generally accepted ethical procedures were followed to guarantee that all human subjects choose to participate of their own free will and that they were fully informed regarding the nature of the research project, any potential risks, as well as issues of confidentiality and anonymity of their responses.

Between April and May 2021, 48 informants were approached through "cold calling" in LinkedIn. These approaches aimed to mimic the geographical and activity distribution of fintech in Latin America, namely association, start-up entrepreneur, working in a fintech or fintech related activity in an institutional setting, and journalist (Lynch, 2005; Rowley, 2012). Our approach consisted of a short message inviting individuals to discuss the challenges of women to become entrepreneurs in that industry and region. About half the people approached agreed to take part (25) and these "snowballed" into 29 others available for a second round of interviews (to be pursued at a later date). Each session lasted between 30 and 45 minutes, with a couple going for a full hour. See Table 1 below.

Although we achieved gender parity within the two main research categories, Table 1 also shows there was an over representation of Argentinian responses and under-representation of other countries, notably Brazil and Colombia. Keeping geographic distribution in mind was important because, as measured by the number of total start-ups, fintech activities in the region concentrated around five countries, namely and in no order but alphabetical: Argentina, Brazil, Colombia, Chile, and Mexico. Of these, Brazil, Colombia, and Mexico represented more than two thirds of all the start-ups in the region (IDB *et al.*, 2018, p. 28). Meanwhile, according to the same source and by the same measure, Bolivia, Costa Rica, Dominican Republic, El Salvador, Honduras, Guatemala, Nicaragua,

Panama, and Paraguay, combined represented only 3 percent of new fintech firms in Latin America.<sup>14</sup>

Table 1: Distribution of Semi-Structured Interviews (April-May, 2021)

<b>Activity</b>	<b>Female</b>	<b>Male</b>	<b>Sum</b>	<b>Percent</b>
Association	0	2	2	8%
Start-up	6	7	13	52%
Institutional	6	3	9	36%
Journalist	0	1	1	4%
<b>Sum</b>	<b>12</b>	<b>13</b>	<b>25</b>	<b>100%</b>

  

<b>Location</b>	<b>Female</b>	<b>Male</b>	<b>Sum</b>	<b>Percent</b>
Argentina	8	3	11	44%
Brazil	1	0	1	4%
Chile	0	5	5	20%
Mexico	2	2	4	16%
Peru	0	2	2	8%
Uruguay	1	1	2	8%
<b>Sum</b>	<b>12</b>	<b>13</b>	<b>25</b>	<b>100%</b>

Following Berg (2004), we sought for concordances within different responses by genders within the two main research categories (activity and across geography). Coding was emergent, rendering a global reading of the interviews. Following Moser and Korstjens (2018), each analytical unit was immediately compared with the others as it emerged. Data analysis was thus carried out by generating a combination of inductive category coding with a simultaneous comparison of all units. This latter comparison was done to factor the analysis and reach significant data reconstruction. We then sought for concordance and discordance between oral and written accounts of fintech in Latin America. These results are described in the next section.

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<sup>14</sup> Some of these countries have remarkable outcomes in terms of the growth rate of new firms, specifically Panamá and Dominican Republic are the countries with highest growth rates (500 percent and 200 percent, respectively, although from a very small base).

### 3 ORIGINS AND EVOLUTION OF THE FINTECH REVOLUTION

#### 3.1 What is “fintech”?

As noted at the start, there is disagreement around the term fintech while it has evolved through time to represent a wide canvas of activities that describe start-ups contesting retail financial markets using high-end technological solutions.<sup>15</sup> According to Statista.com, the distribution of fintech startups in Latin America in 2020, by business segment were payments and remittances (26%), lending (21%), enterprise financial management (10%), enterprise technologies for financial institutions (10%), trading and capital markets (5%), personal financial management (5%), insurance (5%), crowdfunding (4%), and wealth management (4%). Other areas of activity included credit scoring, identity services and fraud (3%) and digital-only challenger banks (2%). The relatively low share of companies dedicated to credit scoring, identity and fraud is changing because it was the segment with highest growth rate: from 2017 to 2018 it grew 571% as measured by the number of start-ups (IDB *et al.*, 2018, p. 17). More recently there has been activity focusing on delivering online education (edutech), regulation (regtech), the use of cash (cashtech), and addressing climate sustainability issues (greentech).

Meanwhile and according to Statista.com, the distribution of fintech investments in Latin America in 2019, by business segment was neo and challenger banks (52%), lending (30%), payments (9%), wealth management (3%), tax and accounting solutions (2%), insurance (1%), payroll and advance lending (1%) and the rest being made of financial product distribution, financial infrastructure, and regtech (2%). According to the same source, the eight companies that attracted the largest investments in 2021 were Credits (Brazil, \$360 million dollars), Konfia (Mexico, \$461 million dollars), dLocal (Uruguay, \$357 million dollars), Bitso (Mexico, \$316 million dollars), Ualá (Argentina, \$258 million dollars), Creditjusto (Mexico, \$253 million dollars), Addi (Colombia, \$96 million dollars), Kushki (Uruguay, \$94 million dollars). With this round of funding Bitso reached \$1,000 million dollars and became the first Mexican fintech to receive the “unicorn” denomination

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<sup>15</sup> Although there is a growing research interest regarding fintech in Latin America, there are only a handful of individual case studies. For instance, Zelle in Venezuela by Thomson (2020); blockchain technology and farmers project in Haiti, Billetera Móvil or BiM in Peru (Berkmen *et al.*, 2019, pp. 11-12, 19); Movii in Colombia by León (2021) or Kubo Financiero by Dávila (2013).

while joining the exclusive club topped by Nubank (Brazil), Ebanx (Brazil), Rappi (Colombia), dLocal (Uruguay), and PagSeguro (Brazil).<sup>16</sup>

There is a tendency to be positive about overall developments within the fintech sector (Carney, 2017). This ‘good/positive sentiment’ has its roots in many start-ups associating their strategic mandate with financial inclusion and (allegedly) new solutions to distribute retail financial services (Boot, Hoffmann, Laeven and Ratnovski, 2020; Frost, Gambacorta, Huang, Shin and Zbinden, 2019; Phillippon, 2019; Gabor and Brooks, 2017; Mader, 2018; IDB, 2017). In fact, more than 40% of the fintech companies claim to serve unbanked individuals and small & medium enterprises (SMEs). Indeed, it was estimated that in 2018, 19% of fintech start-ups targeted SMEs and 27% aimed to service consumers in socio-economic-underprivileged groups across the region (IDB *et al.*, 2018, pp. 113-114). This is important for a region where only half of adults have an account in financial institutions but around 67 percent have mobile phones (GSMA, 2018).

However, by themselves the initiatives of fintech start-ups are far from eliminating gender disparities in financial services.<sup>17</sup> In fact, in some cases they may increase them. In Peru, for instance, there is a small share of the fintech start-ups, which is equivalent to 5% of those observed across Latin America. Recent innovations associated with fintech technologies fostered growth in account ownerships in Peruvian rural areas, from 29% of adults in 2014 to 43% in 2017. But at the same time, the same initiatives significantly widened the gender gap in account ownership to the detriment of women (Berkmen *et al.*, 2019, p. 19).

Fintech start-ups are expected to improve competition in the financial sector. But their impact will ultimately depend on their performance vis a vis regulatory innovation (Berkmen *et al.*, 2019). In this regard, the experience of interviewees was mixed. Some had to invest substantial resources to comply and keep up with regulatory changes, while others benefited

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<sup>16</sup> “Top 5 fintech unicorns in Latin America”, Payscalemagazine.com <https://payscalemagazine.com/fintech/top-5-fintech-unicorns-in-latin-america/> (published October 20, 2020; accessed July 2, 2021).

<sup>17</sup> For gender disparity, financial inclusion, and technology in the case of Tanzania see Were, Odongo and Israel (2021).

from the current legislative framework in their country. It was the nature of the activity rather than the geography that seemed to determine the extent of the regulatory challenge.

In spite of the competitive threat, established financial institutions have also benefited from acquiring or making alliances with fintech start-ups.<sup>18</sup> These links are said to improve the performance of traditional financial institutions through greater efficiency or enhanced risk management capabilities, and consequently reducing default risk (Haddad and Hornuf, 2021).<sup>19</sup>

Fintech is also expected to improve social developments, reduce poverty and inequality as well as foster economic growth in rural and isolated areas (Cantú and Ulloa, 2020). Alongside increasing financial access and reducing transactions costs, fintech start-ups are praised for their potential to change the role of central banks while proposing to replace the current monetary system based on the centralization of the money supply (CeFi) and with a decentralized financial (DeFi) system based on cryptocurrencies and distributed ledger technology (i.e. blockchain) (Kowalewski and Pisany, 2020; Omarova, 2019; Frost, 2020; Aaron, Rivadeneyra and Sohal, 2017; Adrian and Mancini-Griffoli, 2019; Stulz, 2019).<sup>20</sup>

Given this wide range of activities it is thus challenging to define what is fintech. In this regard, the International Monetary Fund has noted that a complete characterization of fintech might not be possible. Instead, it proposes to adopt definition put forward by the Bali Fintech Agenda (2018): “Fintech are the advances in technology that have the power to modify the provision of financial services promoting the development of new business models, applications, processes, and products.” (Berkmen *et al.*, 2019, p. 5).<sup>21</sup> Which again is rather superficial and all encompassing.

The lack of clarity of what fintech actually entails was also evident during the course of the interviews, with most participants giving a wide range of (rather superficial) answers and not one of them having thought through the temporal aspect of when this activity began.

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<sup>18</sup> For an analysis of the symbiosis between fintechs and established banks see Clear Bank (2021).

<sup>19</sup> On a discussion about how traditional banks may respond to fintech, see BIS (2018).

<sup>20</sup> About the limits of fintech, see Pereira da Silva (2018), Bernards (2019), Mnohohitnei *et al.* (2019).

<sup>21</sup> For Kregel and Savona (2020) fintech is just financial innovations. For a discussion about the definition of Fintech, see Schueffel (2016).

One interesting exception was interviewee 018, a female start-up founder (with a background in financial institutions and a business degree):

[Some companies call themselves fintech but they really aren't] because to be a fintech (or be in the process of being one) you really need to apply technology to finance. There has to be evidence of that. It's more than a webpage with a questionnaire. You need people behind this presence, analyzing responses and also the processes... you need to automate these processes, to include artificial intelligence, develop algorithms and user experience... it's a process of continual improvement and automation. [25:00 to 26:30].

This definition stands out as it considers activities and processes, it is rather dynamic while different to others which tend to emphasize redefining the point of contact with retail customers. The interviewee was also critical of the lax approach by fintech associations to include almost anyone. This has a potential detrimental effect for the future of the industry as a whole.

### **3.2 Fintech start-ups, gender, and entrepreneurship in Latin America**

There is evidence suggesting that fintech start-ups have become a new avenue to unleash entrepreneurial potential in Latin America. On the one hand, since the late 1990s, micro-finance and fintech start-ups have been active in helping women at the base of the pyramid fulfill their entrepreneurial goals. For instance, María Laura Cuya, from Innova-Funding and founder of FactoringLab, loves the idea of developing solutions to become real the financial inclusion, especially for women micro-entrepreneurs. In her words,

“At Innova-Funding we train founders of micro-, small- and medium sized companies every month in [building their financial acumen] ... We are committed to promoting capacity building for women micro-entrepreneurs... At the trade association, we are committed to raising the profile of women entrepreneurs. We organize events in which women founders or managers are the guest speakers.” (IDB *et al.*, 2018, p. 70).

Another example of business development for women entrepreneurs is the case of Semplici. In 2018, the fintech designed a product with the exclusive aim of supporting women

entrepreneurs while, at the same time, increasing their loan portfolio within low-credit/no-access market segment (IDB *et al.*, 2018, p. 70).

On the other hand, in 2017, 703 fintech start-ups were identified in the region and this number observed a 66% annual growth to 1,116 fintech start-ups in 2018 (IDB *et al.*, 2018, p. 13). However, there are important differences in terms of who has benefited from that growth when considering the gender divide. For the most part, only Berkmen *et al.* (2019) and IDB *et al.* (2018), have considered the role of women in the fintech industry. Broadly speaking, these studies discuss five possible, and not all of them mutually exclusive, ways in which women can interact with the fintech industry: as customers, as employees (which we call “institutional” below), as part of the team establishing a start-up, as regulators or policy makers, in a non-governmental organization, and as part of an external funding body. Of course, it can be the case that in some instances there is an overlap between these roles.

Evidence by IDB *et al.* (2018) and FinteChile and EY (2021) suggested that in Latin America women represented less than 30% of the workforce in fintech companies while only one in 10 fintech companies had achieved gender parity with 50% or more female workers.<sup>22</sup> The same sources also estimated that, on average, 80 percent of all fintechs had at least one woman in their payroll while the countries with the best opportunities for women to work in fintech were Colombia and Argentina, where 16% and 12% of the fintech start-ups, respectively, had at least 50% of women in their payroll.

According to FinteChile and EY (2021), only 20% of start-ups included women in their team in Chile, while the same figure was 35% for the survey of all the region by IDB *et al.* (2018). These numbers were similar or above the global average, where approximately 7% of start-up teams included women. The countries where more women lead the foundation of a start-ups were Brazil, Colombia, and Mexico. Meanwhile, Colombia, Peru, and Uruguay were the countries with the highest proportion of fintech enterprises with at least one woman on the founding team (IDB *et al.*, 2018, p. 66; Lavallega, 2020). Moreover, the same source reported that women founders tend to have more inclusive and diverse team with 16% of start-ups founded or co-founded by women having at least 50 percent of women in their

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<sup>22</sup> Data for IDB *et al.* (2018) emerged from a survey that took place in the first quarter of 2018 and was answered by 397 start-ups from 18 different Latin American and Caribbean countries.

payroll, that is, as twice as many as the average in companies founded by men-only teams (IDB *et al.*, 2018, p. 69).

The gender gap, however, widened when considering teams that included women establishing a start-up as these received 15% less funding than men-only teams, while 45% of women-only start-ups did not receive external financing at all. These figures stand out when compared with the performance of fintech start-ups in the rest of the world, where enterprises with one woman founder obtained results that were 63% more positive than those founded by male-only teams of entrepreneurs (IDB *et al.*, 2018, p. 67, 83). Other sources, however, estimate that:

Women-founded fintechs have raised a meager 1% of total fintech investment in the [10 years to 2020]. In 2019, less than 3% of all VC investment went to women-led companies, and only one-fifth of U.S. VC went to start-ups with at least one woman on the founder team. The average deal size for female-founded or female co-founded companies is less than half that of only male-founded start-ups. This is especially concerning when you consider that women make up a much bigger portion of the founder community than proportionately receive investment (around 28% of founders are women). (Alemán, 2020; p. 5).

Although there is no consensus as to the exact figure, trends in the data above all point to less funding opportunities for women-led start-ups. This seems to be less acute for women as co-founders, thus highlighting the importance for women to be part of a larger community as an active component of their entrepreneurial journey. Indeed, says a local influencer:

In the short term, women founders can take action to boost their chances at VC success in the current investment climate, including leveraging their community and support network...especially any mentors and role models you may have, to introduce you to potential investors. (Alemán, 2020; p. 3).

The same source goes a step further and promotes the idea of women-only venture capital funds.

But how important are communities and external networks for the success of women founders? With the exception of Bátiz-Lazo (2018) and Bátiz-Lazo and Smith (2016), there



has been little systematic research to provide an account of community formation in the financial services sector. Having this in mind we enquired our sample of interviewees about the importance of communities and social networks for start-up formation. Responses from interviewees suggested a clear disparity between men and women.

On the one hand, men were articulate on the importance of having both formal and informal communities prior to and during the early stages of the start-up. They argued that making use of their community was key to sharing resources, information and gaining critical support. Responses from one male interviewee, who asked not to be identified in any form, is telling as he stated: “women are often left out because they are outside communities defined by gender, socio-economic group, education, and even sports.” This statement illustrates the perception of institutional “labyrinths” women would have to navigate and was consistent with other studies which, for instance, documents evidence suggesting the domination of top-level male executives in several communities; most of which had similar educational, occupational experience and knew/met each other before the formation of their community (e.g. Harvey, Maclean and Price, 2020). Men in our sample were, therefore, usually aware of the importance and made active use of networking as a “soft” skill.

On the other hand, women often saw no value in forming a community prior to start-up. They would only engage with other women (though social media or Whatsapp groups) only after having been active in fintech events (such as association meetings, funding drives, or public speaking engagements). Although, some of the interviewees described forming communities after having joined the fintech industry, a relevant experience emerged from Interviewee 017, a woman with a background in graphic design and business who had set up a greentech (i.e., a fintech focused on sustainable development). Like some other women entrepreneurs in our sample, Interviewee 017 teamed-up with her spouse as co-founder in launching their start-up. She shared this about her experience:

[Getting into the fintech scene] was the first time I realized how hard it was going to be being a woman leading with sustainability issues inside the finance and technological world... I always have to prove that I know what I am talking about... especially to the “dinosaurs of finance” who think I am talking bullshit... and the insecurity and fear of not being enough is the same for everybody [in my network of

women entrepreneurs] ... [But it was my husband] from the beginning who said ‘we need to be involved with groups and associations that connect us to other people’ ... [13:39 to 16:38].

Our argument here is not that women are incapable of launching fintech start-ups on their own nor are they unaware of the importance of soft skills or networking. But to note the apparent greater success of mixed teams, not only to deal with chauvinism but to complement the skill set of the team, in terms of both soft and hard talent.

A second implication of the above, and as suggested by the influencer and the interview extracts above, the path to finance fintech start-ups through venture capital (whether individuals or through local or international incubators), seems to favor men-founded start-ups. A reform of venture capital and external initiatives like community building, training opportunities and women-focused support networks, can help towards making fintech entrepreneurship access more equitable for all. We discuss some of these initiatives below.

However, before proceeding, it is worth noting that the path to venture formation as described in the fintech industry, which seems to promise riches to individuals or small teams, not only seems currently biased towards men but stands out from the usual pattern of venture formation in the region which predominantly associated with business groups and family firms (see for instance Lluch, Monsalve and Bucheli, 2021). Indeed, only one of the start-up entrepreneurs in our sample (who happened to be a woman) had founded and financed its fintech venture as a diversification of her network of family-owned businesses. Fintech start-ups, therefore, not only contribute to the economic development of the region but are actively contributing to enrich its diversity of organizational forms while, at the same time, bringing challenges of their own.

### **3.3 Employment challenges for women in Latin American Fintechs**

Most men in our sample saw no “glass wall” in the way for women to enter fintech either as founders or employees. They tended to attribute their lack of representation to cultural and gender-specific factors. For the latter they meant that women would typically take care of a

growing family and thus unable to afford the long hours and single-minded dedication required by a start-up. Some were critical that women should be given more opportunities in the workplace simply because of their gender.

To the contrary, women interviewees were quite articulated in their description of a “glass wall”. The opinion of Interviewee 019, a female human capital consultant specialized in fintech, summarizes the process of hiring in the fintech job market:

Broadly speaking [when searching for talent we] first look at referrals, then we might search specific profiles in LinkedIn while looking at their formal networks in the job market, and then if they belong to communities that are closely related to technology, finance or fintech... Our technology people attend fintech events and hackathons and they might come back with suggestions for us to look at specific individuals. [16:12 to 17:29]

As noted in the extract, informal networks and being active in relevant forums can be important to become aware of job opportunities. But women often find it hard to fill spaces which have been typically dominated by men. This might be compounded by a lack of opportunities to develop that talent. The opinion of Interviewee 019, on the lack of a pool of talent in fintech is telling and supports the perception that there is a “glass ceiling” in fintech for women:

For us, one of the biggest challenges from the start has been to bring together a diverse team. This is super complex when you need senior people. It is often the case that women who are in technology have not had the opportunity to gain experience in certain types of projects or to prove themselves tackling particular challenges. So, although I do not like the word, they are discarded [in the search process] because they do not have the right experience... And it is difficult to achieve a diverse team if you cannot afford to have profiles that have a steeper or longer learning curve ahead of them. These are time sensitive missions and you need to deliver from day one. [19:17 to 20:43]

Hence, even though there are an increasing number of women in technology and engineering, it is difficult to appoint women to senior positions if they are not given opportunities to

develop early on. There is a vicious cycle where a lack of opportunities prevents developing a track record showing an ability to sort out challenges and expertise, thus closing the door to senior positions. This obviously perpetuates the gap between genders within the industry.

However, there are already several initiatives in place aiming to address this. For instance, Laboratoria, a non-governmental organization that works with among others the IDB, to promote greater numbers of Latin American women into engineering and technology.<sup>23</sup> Part of their work is to form educational and work-place communities linked to the technology world. Interviewees also told of similar initiatives in which they were involved through external communities or within their companies. For instance, Interviewee 020, a woman with 20-year track record in engineering, told of her commitment to work through external networks while helping and mentoring teenagers into the world of technology in her country. She also spoke of her work gender equity committee in her local fintech association. Interviewee 023, with a background in sociology and currently in the human capital function of a large fintech, told of some of the initiatives in her company:

In this company we have a number of women in middle management... we have [an overall] 52/48 split between men and women. We know that if we want more women in senior management tomorrow, we have to start working today because this is a bet for the long-run... Diversity is an ongoing concern and daily topic for this company... [For three years now] we have had an initiative for training and employability aimed at women in technology... [and this aimed to deepen their technology skills but also their soft skills like] communication skills because we are aware that having the right interpersonal skills is important to be able to join higher echelons in any company... particularly now with remote working practices. [19:27 to 23:50].

“Chicas en tecnología” (Girls in technology), established in Argentina in 2015, is another instance of a non-governmental organization aiming to reduce the gender gap not only in fintech but in the wider sectors of technology and engineering. This Argentinean institution motivates, trains, and accompanies the next generation of women leaders in technology through mentoring, clubs, and workshops for female teenagers.<sup>24</sup> One of the fintech

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<sup>23</sup> <https://www.laboratoria.la/en> (accessed June 18, 2021).

<sup>24</sup> <https://chicasentecnologia.org/> (accessed June 18, 2021).

interviewees who is committed to solve gender issues also works as a mentor for “Chicas en tecnología”.

All this tells that active steps have been taken both inside and outside the fintech start-ups to reduce the gender gap by mentoring and supporting the formation of communities by women related to technology and fintech in Latin America. However, it must be noted that participation below gender parity is not unique for fintech startups but also part of a major problem for companies in Latin America. Multiple sources point to insufficient number of people with a technology or engineering background to meet the demand. Some estimates for Latin America pointed out that less than 30% of science, technology and computer professionals are women, which is consistent with the analysis of “Chicas en tecnología” for Argentina: only one of three undergraduate students in engineering, computing, and science are women. Therefore, fintech enterprises just cannot find enough technology employees (both men and women). As the survey by FinteChile and EY (2021) suggests, it is very difficult for fintech startups to find talent in technology (75% of Chilean fintechs mention it) and software (33% point it out).

#### **4 TENTATIVE CONCLUSIONS AND FUTURE RESEARCH**

Evidence presented in this chapter documents the increasing number of start-ups related to financial technology in Latin America since 2012. A trend that seems firmly on the rise and associated with improved access to financial markets by unbanked individuals and SMEs. These trends also associate with a reduction of financial exclusion, particularly for women, as well as supporting women entrepreneurs in micro-business and SMEs. The so-called “fintech revolution”, however, promises to deliver a new type of leaders associated with an increase of women in senior managers and/or as founders. All this would suggest that fintech has had a ‘scissor’ effect both at the bottom and the top of the pyramid. Important gender issues nonetheless remain.

Despite an apparent bias in venture capital support, as almost half the start-ups founded by women-only did not receive external financing, by some estimates the rate of women as founders or co-founders in Latin America is higher than the global average. This is encouraging, although there are important differences at the country level: Argentina,

Colombia, and Mexico, appear as the most favorable places for women to start a fintech company. The case seems less appealing in the Caribbean, Chile, and Paraguay.

A vicious cycle seems to hamper women progress within fintechs: lack of opportunities to prove themselves solving challenges stops young women from accruing the track record that will set them into a senior positions. This cycle and the pressing needs of “mission critical” projects in fintech seem to limit chances to reduce the gender gap within the industry. Both non-governmental organizations (such as “Laboratoria” and “Chicas en tecnología”) and the fintechs themselves have tried to address this sort of challenge through initiatives such as mentoring, training opportunities, and women-focused support networks. Yet in spite these initiatives and that diversity and inclusion policies seem common within fintech start-ups, as in the finance and technology sectors, fintech is overall far from gender equality. But this is a greater concern when data reported for fintech is below what you would expect from the intersection of the other two sectors. Again, there are important differences by country and we readily acknowledge that some of the challenges described above are not unique to fintech while the shortage of skills is an endemic problem across sectors for the whole region.

There is a growing interest to ascertain the role of technology in overcoming barriers identified in the formation or start-up process. But instead of asking how new technology facilitated entrepreneurship, we questioned the gender differences in the entrepreneurship process within a new field intersecting technology and finance. In this regard, our findings, in relation to resources, gatekeeping positions, etc., seem similar to what has been found in other studies exploring the challenges of women entrepreneurs. Our results suggest social factors (and particularly traditional roles such as child minding and housekeeping) form a “labyrinth” that, in spite of a number of very successful pioneers leading the way to other women, reduces the participation of women as fintech entrepreneurs. We readily acknowledge to be but scratching the surface to disentangle issues across the region and those unique to the sector in specific countries. For instance, we have not questioned whether there are gender differences with respect to the definition of what is fintech and what is to be a fintech entrepreneur. Something that identity and institutional theory might help to elucidate. Moreover, there are clear links between women in fintech and long-term economic

development of the region. But more importantly, fintech startups should be seen as a vehicle for personal fulfillment and economic independence of women (Escobar Andrae, 2021), which is clearly not taking place. We believe most of the literature has focused on the industrial organization and technological aspects of fintech while more effort could be placed to reframe this phenomenon through the understanding of the trends in this sector within current debates around gender and entrepreneurship. We have noted the role of external financing as a key issue for fintech startups, one where women seem placed at a particular disadvantage and which requires further investigation.

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