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ARTÍCULOS

Financial inclusion in Latin America: a new approach to analyze its current position and relative convergence to a global level

Inclusión financiera en América Latina: un nuevo enfoque para analizar su posición actual y la convergencia relativa a nivel mundial

Inclusão Financeira na América Latina: uma nova abordagem para analisar sua posição atual e a convergência relativa em nível mundial

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Abstract. This paper tries to characterize the level of Financial Inclusion in Latin America as well as speculate with the relative convergence of the Region or its main countries towards the most developed areas or countries in this area. Our hypothesis rest on Latin America presents a wide dispersion and, consequently, it will require vast efforts to increase the levels of their Financial Inclusion level. This goal will also require significant efforts in terms of public-private coordination and collaboration.

Key words: Financial Inclusion; Bancarization; Global Findex

JEL codes: O29, C33

Resumen. Este trabajo intenta caracterizar el nivel de Inclusión Financiera en América Latina, así como especular con la convergencia relativa de la Región o sus principales países hacia las zonas más desarrolladas o países en esta área. Nuestra hipótesis se basa en que América Latina presenta una amplia dispersión y, en consecuencia, requerirá de grandes esfuerzos para incrementar su nivel de Inclusión Financiera. Este objetivo también requerirá importantes esfuerzos en términos de coordinación y colaboración público-privada.

Palabras claves: Inclusión Financiera; Bancarización; Global Findex

JEL códigos: O29, C33

Resumo. Este trabalho busca caracterizar o nível de Inclusão Financeira na América Latina, bem como especular sobre a convergência relativa da região ou de seus principais países em direção às áreas ou países mais desenvolvidos nesse campo. Nossa hipótese baseia-se no fato de que a América Latina apresenta uma ampla dispersão e, consequentemente, demandará grandes esforços para aumentar seu nível de Inclusão Financeira. Esse objetivo também exigirá esforços significativos em termos de coordenação e colaboração público-privada.

Palavras-chave: Inclusão Financeira; Bancarização; Global Findex

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1. Introduction

Financial Inclusion (FI) has become, in recent years, a central axis of public policy development throughout the world within the framework of a capitalism revision process, product of the intra and inter-sectorial differences that are observed. Some of these instances refer to economic growth, income distribution, and socio-economic dispersion. Of course, the scope, orientation, depth and direction that is given to the terms in question do not escape this situation, so there are several alternative definitions without a uniform criterion yet. According to the Organization for Economic Cooperation and Development (OECD), FI is "the process of promoting affordable, timely and adequate access to a wide range of regulated financial products and services and the expansion of its use to all segments of society through the application of innovative tailor-made approaches, including financial awareness and education activities with the aim of promoting both financial well-being and economic and social inclusion" (BCRA-CAF, 2017).

In addition, there is an agreement between analyst that the concept of FI is multidimensional, including elements on both the supply side of financial products and the demand side, so its basic dimensions are referring to *access, use, quality* and *impact* on the financial well-being of families and companies. Thus, *access* implies that the provision of financial services must respond to the needs of clients, at an affordable and sustainable cost for provision. The *use* (or *usage*) refers to the degree of utilization of products and services; while *quality* points out the effectiveness of care, provision channels and educational variables, such as knowledge and financial behavior. It should not be forgotten that FI should incorporate population groups that are normally in a situation of greater relative disadvantage: low-income households, rural residents, informal workers, women, and small and medium-sized enterprises (Ozili, Ademiju & Rachid, 2023).

Being able to access a transaction account is a first step towards a broader FI since it allows people to save money, send and receive payments. It can even serve as a gateway to other financial services. FI is not limited only to access to basic services by those who are completely excluded from the markets; rather, it covers a wide range of financial products such as savings, credit, payments, transfers and insurance and, on the other hand, it also contemplates the proper use of them, even those that already have access to the system.

2. Literature Review

FI is a problem of growing interest by academics, politicians and international organizations. Allen, Demirgüç-Kunt, A., Klapper &Martinez Peria (2012); Demirgüç-Kunt, Klapper & Singer (2019); Demirgüç-Kunt, Klapper, Singer, Ansar & Hess (2018) and Ediagbonya & Tioluwani, (2023), reflect the microeconomic and macroeconomic effects of FI by pointing out that it can have very beneficial effects for individuals. The evidence collected by them shows that FI would allow individuals (particularly those who are in the lowest 40% of income distribution, a segment in which the lack of banking penetration is usually concentrated) to perform day-to-day transactions, expanding your investment opportunities, smoothing consumption, managing risks, and dealing with unforeseen shocks in a more efficient, safe and appropriate way than the informal channels they often turn to.

References to the determination of macroeconomic impacts generated by a higher level of FI are also considered in several of the works cited above, since a higher FI would be consistent with an increase in the growth rate of GDP until reaching a high level of depth and inclusion where there would be no additional profit. At the same time, they indicate that a greater FI would drive stronger economic growth rates through a greater laundering of economic activity, an aspect that would allow both increasing tax collection and reducing levels of individual and sectorial taxation, thus providing direct incentives for investment and consumption. On the other hand, the possibilities that the banking system itself would have greater capacity to grant credits would increase from the historical knowledge of the payment profile and risk of each agent. In turn, some indicators of access and use such as the availability of ATMs, the percentage of adults with bank accounts, the use of accounts to receive government transfers and the proportion of firms that obtain credit, would be positively associated with a higher growth of the sectors that require financing from external sources (Boachie, Aawaar & Domeher, 2023),

One of the main challenges to FI still is the high cost of serving low-income segments or in remote places (particularly through traditional technologies and business models) compared to the expected low margins. For banking intermediaries in the Region, the lack of economies of scale continues to have an impact so that financial services are not offered to low-income population or are offered but at a high cost to the user, which in turn reduces potential demand. In this framework it is important to consider the role that certain microfinance institutions play such as savings, credit and various services cooperatives (electricity and water, gas, etc.) that have long-standing links with such segments, which are usually sub -attended for lacking the scale and minimum geographical coverage to amortize costs. Thus, its offer of services is limited.

As Olloqui, Andrade & Herrera (2015), Abdelghaffar, Emam & Samak (2023) and Osakwe & Solleder (2023) put it well, the current motivation behind the efforts to achieve FI lies in the promise of new business models that use available infrastructures and technologies, both hardware and software, in order to reduce costs and obtain the necessary scale for its sustainability. In particular, we have sought to create access through digital means such as mobile phones and *Sale Points* (devices connected to a cellular network through which electronic payments are made) that, together with agent networks, allow us to offer basic services low value efficiently and at scale, starting with payment and transfer services. Connected with this point of view, it is observed that the development of digital platforms at scale and with sustainability has been weak. Although a significant number of services have been achieved they only manage low levels of accounts (relative to world ratio) and more than half remain inactive. Only in some Central American countries can one speak of a disruptive effect on the market. As the market evolves, a key factor for achieving greater scale will be the development of interoperability between means of payment, that is, the interconnection between platforms that allows the transfer of resources from one provider´s digital account to another, as well as the connectivity of digital platforms with traditional banking platforms for making payments. All this will impact the efficiency in the market of its payment systems, its price and the final value for customers.

3. Data, Methodology and Results

We are going to characterize, at global level, the different levels of FI that can be observed; particularly, considering how Latin America (LA) is inserted in that context, what differences exist within it and what possibilities - as a region and their respective countries - have when it comes to reaching international standards. First, a Data Table is constructed with one hundred and thirty-eight (138) countries -twenty (20) correspond to LA- and six hundred fifty-eight (658) quantitative variables, of which: a) one hundred fifty-three (153) characteristics are provided by the United Nations Development Program (PNUD, 2019) and b) five hundred and five (505) are obtained from Global Findex (2017). This data set covers almost 97% of the world population. Next, the Principal Component Analysis (PCA) method is applied to this Table

PCA is an exploratory statistical technique that has as a starting point: the search for the similarity of the individuals in terms of the association of the characteristics measured on them. The identification of groups of countries with similar characteristics makes it possible to incorporate into the analysis an ordered response Logit model to study the convergence of the Region at the highest levels of FI observed globally. Then, the similarities in the countries of the Region are explored; so ACP is carried out only on the twenty (20) LA´s countries. Finally, the convergence likelihood of LA Region to the highest levels of FI are calculated.

PCA allow us to define three (3) groups as we see below. Each one of them contain certain LA countries:

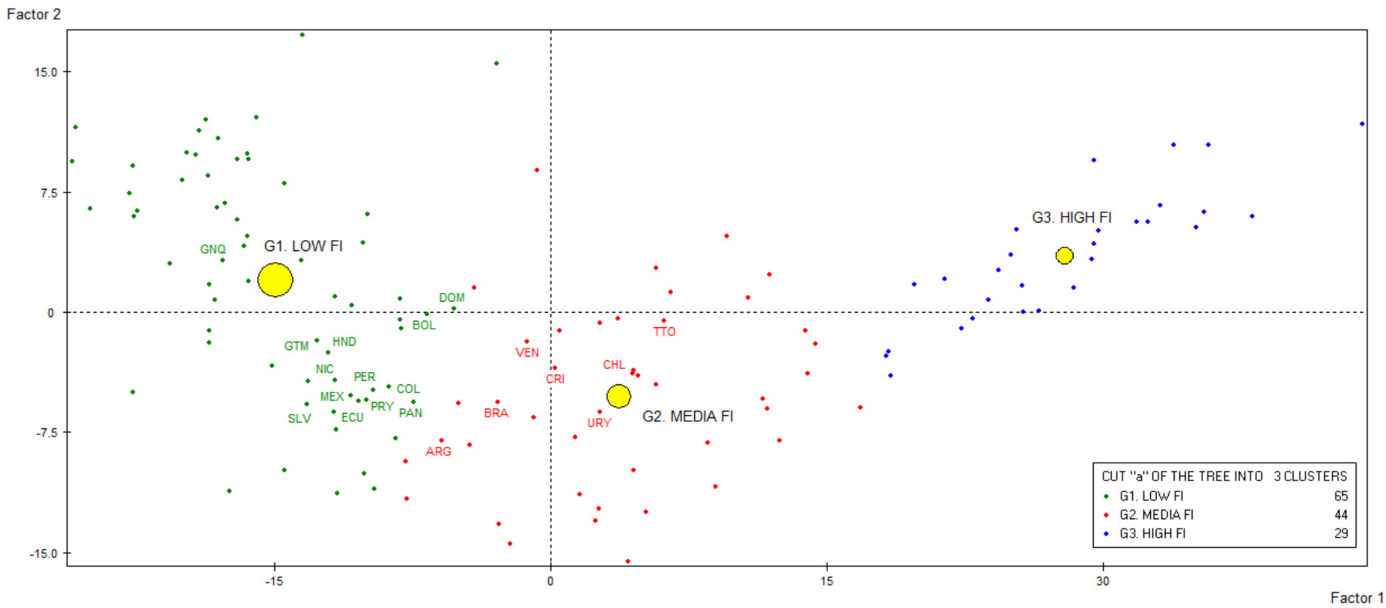
a) G1 ("Low" FI Group): characterized by the following variables with greater significance: a) salary received only in cash; b) gender inequality; c) inequality in life expectancy; d) vulnerable employment; e) high dependency ratio; f) high coefficient of human inequality; g) loss of Human Development Index (HDI) due to inequality; h) bank accounts without movement in the last year; i) inequality in education; j) high child mortality rate; k) agricultural employment; l) high fertility rates; and ll) mortality in children under 5 years of age (The countries that lead this group are Togo, Honduras, Haiti, Senegal, Congo, Cameroon, Mauritania, Guatemala, Ghana and Laos. These countries are the top ten (10) out of a total of sixty-five (65). This group represents 47.10% of the total countries).

b) G2 ("Media" FI Group): this group is characterized by the following variables: a) family or friends as the main source of emergency funds, with primary and secondary education, 15-24 years old or older; b) these group belong to the poorest 40% of the population, in rural áreas and men; c) first account opened to receive wages; d) empowerment of women through the proportion of births attended by qualified health personnel; and e) population that uses at least basic sanitation services (The group is led by Chile, Uruguay, Turkey, Cyprus, Russia, Mauritians, Costa Rica, Brazil, Kazakhstan and Croatia and they become the top ten (10) of a total of forty-four (44) countries. This group represents 31.88% of the total countries)

c) G3 ("High" FI Group): characterized by: a) Internet use for purchases -by those who live in the rural sector or are over 15 years old; b) savings in a financial institution in the different social strata over 25 years old, women and rural population; b) 60% of the population with higher incomes and belonging to labour force (The countries that lead this group are Belgium, Australia, Austria, Switzerland, United Kingdom, Ireland, France, Korea, Germany and the Netherlands and they conform the top ten (10) of a total of twenty-nine (29) countries. This group of countries represents 21% of the total countries)

The analysis allows us to consider that G3 is the only one that presents the best conditions in the context of FI worldwide, while G1 is the one with the lowest performance. Next Figure illustrates the dispersion of the countries, being able to see the LA countries integrating Groups 1 and 2, respectively:

Figure 1. Financial Inclusion Groups at Global Level



Source: Authors calculations with SPAD due to Data Table on PNUD-Global Findex.

PCA method evidenced the existence of a global order, from the least developed to the most developed countries in terms of IF. So, It can be possible to define a Logit Model that allow us to estimate the likelihood that the countries located in low or medium FI Groups converge to the countries with the highest level of FI. The American countries considered are 20; These are found, 65% in the lowest inclusion group (Bolivia-Plurinational State-, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay and Peru) and 35% remaining in the medium inclusion (Argentina, Brazil, Chile, Costa Rica, Trinidad and Tobago, Uruguay and Venezuela-Bolivarian Republic-). Estimations due Logit model allow us to show next results (see next Table):

a) Countries belonging to Low/Medium FI Group have a probability of reaching High FI Group on the order of and $4{,}42E^{-06}$, respectively, that is practically null.

b) On the other hand, the probability that Low FI Group will remain in it is 0.9558. This value is greater than 0.0038, that is, the probability of evolving to Medium FI Group.

c) Lastly, the group of countries belonging to Medium FI Group have a probability of being in this group of 0.9962; the probabilities of becoming part of Low FI Group (0.0412) or converging to High FI Group (4,42E-06) are practically equal to 0.

Table 1. Convergence Likelihood to Higher Financial Inclusion Groups

Original Groups	Convergence Likelihood to:	
	Low FI	Higher FI
Low FI	0,9588	0,0038
Medium FI	0,0412	0,9962
High FI	7,21E-10	4,42E-06

SOURCE: Authors calculations

The reason for a low convergence for Low FI Group to High FI is due to the fact that, on average, the indicators of the member countries of this group are very far from the average values of the most developed group. A similar situation is observed with the countries belonging to Medium FI Group. On average, the indicators of member countries of this Group are far from the average values of the most developed group.

What should countries do to improve their level of FI? Next Table shows 2 scenarios for each group -Low and Medium FI Groups- that allow simulating the likelihood of membership to each group and to *jump* to a higher Group, by increasing the average values for the variables considered in the Logit Model; that is, doubling and tripling their current values. Thus, the results are:

a) Doubling the initial values allows Low FI countries to increase the probability of belonging to Medium FI Group (0,2404); while the same situation leads to Medium FI countries to increase the probability of being located in High FI Group (0,1664).

b) Tripling the current values consolidates both groups at next level.

c) Finally, the qualitative jump is given by tripling the current FI indicators.

Table 2. Likelihood of Membership to Each Financial Inclusion Group

Convergence to:	Scenario Simulation according to Current Situation			
	Low FI Countries		Medium FI Countries	
	Scenario 1: Doubling Indicators	Scenario 2: Tripling Indicators	Scenario 1: Doubling Indicators	Scenario 2: Tripling Indicators
Low FI	0,7596434	0,3003956	8,406E-08	1,8625E-12
Medium FI	0,2403566	0,6996043	0,8336504	0,00011102
Alta	5,30732E-09		0,1663495	

SOURCE: Authors calculations due to previous results.

4. Conclusions

The challenge of finding the best way to promote FI has been discussed in multiple debates and assumed through international collaboration commitments in which LA has participated. According to the Microscope Global, LA remains as a leading Region in terms of regulation and infrastructure for FI. Among other advances this implies that financial service providers can establish agent networks or take advantage of existing ones to offer innovative services, accelerating the deployment of new products for clients. However, even when accounts are opened and new and innovative channels of access to financial products and services are developed, usage levels remain below expectations and the sector faces the risk of having significant losses due to the large number of accounts that are not used. The foregoing corresponds to the corroboration we have made of the research hypothesis set forth in this document: *the region has, on average, a low level of FI compared to the world, with clear differences between the countries that the composition with respect to the possibilities of convergence to a higher level, aspects that require strong public-private intervention*.

It is clear that LA has gone through a process of expanding decentralized service points and access to regulated financial services. However, when we analyze its use, comparing to the progress on a global scale, the region has shown a slow performance and hides an inequality between countries, apparently associated with the strength of financial systems, technological platforms based on access to mobile telephony, modern payment structures and, ultimately, the degree of people's understanding of the products offered. Added to this is the inequality that exists in each country in the Region, mainly with regard to the levels of financial deepth, and also the ability to reach populations in situations of exclusion. Therefore, any FI process must necessarily be accompanied by efforts to design adequate and accessible financial products as well as initiatives that favor its permanent and responsible use. It is not enough to open an account; it is necessary to aim at achieving positive financial results and effectively reducing the vulnerability of customers.

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