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The Role of Fintech in Promoting Financial Inclusion: Evidence from Latin America

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Abstract

Financial technology innovations, known as Fintech, are a fundamental tool for advancing financial inclusion by offering innovative and accessible solutions to individuals and businesses previously excluded from traditional financial services. This role is particularly relevant in Latin American countries, where geographic dispersion and a lack of financial literacy limit financial access. This study aims to analyze the impact of financial technology on financial inclusion in Latin American countries by employing a balanced panel data model. The analysis uses cross-sectional data from the years 2011, 2014, 2017, and 2021. Fintech is proxied by fixed broadband subscriptions (per 100 people), while financial inclusion is captured through the use of digital payments, along with other variables related to access and usage of financial services and selected macroeconomic control variables. The main findings highlight the importance of digital infrastructure in facilitating formal access to the financial system, particularly through account ownership and savings capacity, though not through access to credit.

Keywords: Fintech, Financial Inclusion, Panel Data.

Introduction

One of the most important factors supporting income improvement for individuals and business growth is access to financial services. Through such access, people and firms can engage in a wide range of activities and obtain financial resources. Financial inclusion is conceived as a strategy to help the majority of the population gain access to financial services, as the use of financial products and services has a high impact on improving resilience to economic shocks and investing in goods, products, and services. This, in turn, translates into improved well-being, economic growth, and poverty reduction (National Banking and Securities Commission of Mexico, 2020).

However, it is important to note that one of the main challenges in expanding and deepening the reach of formal financial services in most countries—particularly in Latin America—has been geographic dispersion, a lack of financial education, and the limited physical presence of formal financial institutions. These constraints have especially affected people living in rural areas. One of the most important ways to address this issue has been through the adoption of financial technology (Fintech) innovations by financial institutions. The rapid adoption of smartphones, the rise of digital banking, and the impact of the COVID-19 pandemic have accelerated the use

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of Fintech, compelling large, medium, and small financial institutions worldwide to progressively integrate financial technology into their product offerings (Santander Private Banking, 2024). It can be argued that the use of digital platforms (such as mobile applications and websites) has enabled financial institutions to deliver services to individuals in rural or underserved areas. Fintech has made it possible to integrate new technologies adapted to the needs of the population—connecting stakeholders, changing operational models, and offering new products that meet user demands. This has transformed the traditional structure of the financial system, especially by creating financial products tailored to the needs of those previously excluded from it Development Bank of Latin America and the Caribbean, 2019). This transformation is possible due to the lower operational costs that Fintech offers traditional banking, which translates into more affordable products and services for the population. Additionally, the use of technology enables faster and more efficient financial transactions.

Moreover, in Latin America and the Caribbean, traditional banks have been forced to transform themselves to improve financial inclusion across the region—particularly in historically underserved or marginalized areas. Digital transformation has become a key solution to address these challenges. The rise of Fintech providers, who offer direct-to-consumer solutions as well as services for other financial institutions, reflects the sector's adaptability to individual and institutional needs. These providers demonstrate notable flexibility and the ability to reach various market segments (Navarro et al., 2025).

In summary, Fintech plays a key role in financial inclusion by providing innovative and accessible solutions to individuals and businesses that previously lacked access to traditional financial services. Its impact on financial well-being, economic growth, and inequality reduction is significant. However, it is essential to address the persistent challenges to ensure sustainable and equitable development.

Revisión De La Literatura

Various scholars have examined the relationship between financial inclusion and economic growth. Findings suggest that financial inclusion can foster economic growth to varying degrees depending on each country's context. In countries with high levels of economic development, financial inclusion promotes growth, though the effect is asymmetric. That is, its impact varies according to the economic structure, the level of access to financial services, and the policies implemented (Chen et al., 2023).

Similarly, in less developed countries, financial inclusion has a positive impact on economic growth, with access and market concentration being the factors most closely associated with such growth (Afonso & Blanco-Arana, 2024). However, from another perspective, some studies argue that the relationship is not unidirectional; rather, economic growth can also drive financial inclusion. Particularly in developing economies, as national income increases, household income improves, demand for financial services rises, and financial institutions expand their capacity to deliver more accessible products. In this context, economic development facilitates the creation of financial infrastructure, the digitalization of banking services, and the implementation of regulations that promote equitable access to the formal financial system. Therefore, the relationship between economic growth and financial inclusion can be considered bidirectional, depending on the structural and policy conditions of each country (Chinoda, 2020).

According to the World Bank (2022), financial inclusion facilitates the reduction of extreme poverty and contributes to improved living conditions. Having a bank account represents the

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first step toward accessing a wide array of financial services, allowing individuals to improve their economic stability and promote personal advancement. Credit access constraints limit the ability of low-income individuals to start businesses, exacerbating income inequality (Menyelim et al., 2021). In practice, however, this ideal is not easily achieved. Many people, due to lack of income, turn to alternatives outside the formal financial system—options which, beyond being unregulated and often illegal, can generate harmful outcomes for users. Some critics argue that financial inclusion is not entirely beneficial, since access to credit can lead to over-indebtedness among low-income populations. Nevertheless, this risk can be mitigated through financial education initiatives promoted by the financial institutions themselves (Goldenberg Serrano, 2020)

Another factor contributing to financial exclusion is the high cost of financial services (Arregui Solano et al., 2020). Poverty reduction becomes more attainable when vulnerable populations gain access to affordable financial services (Bhatty & Khan, 2023). For this reason, the Maya Declaration calls for the implementation of financial inclusion policies that promote accessible services, leveraging innovative technology to significantly reduce costs (Alliance for Financial Inclusion, 2024). According to the Global Findex report, the COVID-19 pandemic accelerated financial inclusion through increased use of digital payments. By 2021, nearly two-thirds of the world's adult population made or received payments digitally. These payment methods offer enhanced security and convenience while also serving as a gateway to broader financial services (World Bank, 2022).

Technology has become a powerful enabler of financial inclusion, extending beyond the physical limitations of traditional infrastructure through tools such as bank cards, ATMs, digital payments, mobile apps, and account opening via mobile devices. These advancements have reduced barriers related to social class, gender, and age. Importantly, they have supported the inclusion of previously excluded populations due to geographic isolation by enabling financial transactions through computers or mobile devices without the need to visit physical branches. This shift is evident in the stagnation of bank branch expansion in contrast to the growing number of digital service points, including telephone banking and internet banking, which have experienced sustained growth. The introduction of credit cards and ATMs accelerated the digitalization of financial services and marked the beginning of what is now known as Fintech. As technology has advanced, the financial system has gradually adapted, using such innovations to enhance and expand financial inclusion.

Fintech refers to the application of innovative technologies in the financial sector, encompassing both customer-facing services and internal process optimization. It plays a key role in transforming and modernizing the financial industry (Giglio, 2021). Fintech solutions are fundamentally consumer-centered, aiming to meet specific needs that traditional financial systems have not adequately addressed. Unlike traditional institutions, Fintech companies are not constrained by legacy systems. They are built on digital infrastructures, significantly lowering the need for physical assets and capital investments. Their high degree of scalability, enabled by operational simplicity and technological intensity, allows for rapid market expansion. Fintech products are typically user-friendly, enhancing accessibility across diverse consumer profiles. Their innovative edge lies in disrupting conventional financial models through agile and efficient solutions.

In terms of regulation, many Fintech companies operate under evolving legal frameworks, which grants them some flexibility. However, their integration into national economies faces

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challenges such as regulatory adaptation and innovation oversight. Compliance with consumer data protection and cybersecurity regulations is critical to maintaining trust and stability in the digital financial ecosystem (Ernst & Young Global Limited, 2017; Salas Quenta et al., 2022).

By placing the customer at the core of their business models, Fintech firms have influenced the transformation of traditional banking, generating synergies that benefit both consumers and financial inclusion. They expand access and provide innovative product and service options—opening new opportunities for reaching underserved populations traditionally excluded due to cost, accessibility barriers, or the lack of appropriate financial products (Salas Quenta et al., 2022).

Nonetheless, Fintech also introduces new risks associated with digital financial services, such as consumer protection, data security, cyber fraud, and digital exclusion. For example, users may face complex products, hidden fees, and potentially abusive practices due to low transparency. The handling of personal data also increases vulnerability to cyberattacks, identity theft, and digital fraud. To mitigate these risks, Fintech firms must operate under regulatory frameworks that ensure transparency, security, and accountability. They must also promote financial and digital literacy to ensure users fully understand the services they are accessing (Goldenberg Serrano, 2020). According to León Cercado et al. (2024) while financial inclusion has been extensively studied in developed countries, emerging economies such as those in Latin America have a limited body of literature analyzing its evolution, challenges, and dilemmas in the region.

Although technological progress in Latin America is gradually reaching parity with developed nations due to financial globalization, digital literacy levels show a stark contrast. This disparity prevents certain segments of the population from fully leveraging digital services and financial innovations. In this context, Fintech firms have assumed an educational role, promoting technological literacy among their users. They do so through training strategies and the development of intuitive platforms that aim to improve users' digital skills, allowing them to adopt financial tools in a safe and effective manner. (Menyelim et al., 2021).

Financial inclusion has become an increasingly urgent necessity, particularly in Latin American economies where a significant portion of the population still lacks access to financial services. This exclusion limits individuals' opportunities to utilize tools such as credit, savings, or insurance to generate income. Without such access, many people remain trapped in cycles of poverty, unable to improve their economic circumstances or invest in opportunities that enhance their personal and professional development—factors that contribute to overall productivity and innovation (León Cercado et al., 2024). Finally, collaboration among governments, financial institutions, and technology firms plays a critical role in developing secure and inclusive digital ecosystems.

Methodology

To analyze the impact of Fintech on financial inclusion in Latin America, this study employs a panel data econometric model. This methodology allows for the consideration of both the temporal and cross-sectional dimensions of the phenomenon, capturing unobserved heterogeneity across economic agents or observational units, as well as over time. Panel data models are particularly useful when controlling for time-invariant unobservable characteristics of these agents, which are assumed to be correlated with the explanatory variables in the model.

This analysis uses cross-sectional data from the years 2011, 2014, 2017, and 2021 for a group of Latin American countries, selected based on data availability.

The dependent variable in the model is Financial Inclusion, which refers to the access that individuals and businesses have to a range of useful and affordable financial products and services that meet their needs and are delivered responsibly and sustainably (World Bank, 2024). The main explanatory variable is technological innovation (Fintech), along with a set of financial and macroeconomic control variables. The financial variables include indicators such as the percentage of adults with an account at a financial institution, and those who have saved or borrowed from a financial institution. The macroeconomic controls include GDP per capita (as a proxy for economic growth), the annual inflation rate, trade openness, and population size.

For the empirical specification of the model, both fixed effects and random effects regressions are estimated. The Hausman test is subsequently applied to determine the most appropriate model. Additionally, tests for heteroskedasticity, autocorrelation, and multicollinearity are conducted to ensure the robustness of the results.

According to Greene (2018), the model takes the following functional form:, (Greene, 2018) establece la siguiente forma:

$y_{it} = x'_{it}\beta + z_i'\alpha + \varepsilon_{it}$	(1)	
$y_{it} = x'_{it}\beta + c_i + \varepsilon_{it}$		(2)

Where:

- K represents the number of regressors in xitx_{it}xit, excluding a constant term.
- $z_i \alpha$ captures unobserved heterogeneity or individual effects

• z_i denotes the constant term and a set of individual- or group-specific variables, whether observed or unobserved, that are assumed to remain constant over time *t*.

• *y*, *x*, *z* are random variables.

DATA

This research employs a balanced panel data model using cross-sectional information for the years 2011, 2014, 2017, and 2021, covering the following Latin American countries: Argentina, Bolivia, Brazil, Chile, Colombia, Dominican Republic, Ecuador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, El Salvador, and Uruguay.

The general specification of the panel data model is expressed as:

 $FinInc_{it} = \beta_0 + \beta_1 FinT f_{it} + \beta_2 Acous_{it} + \beta_3 Sav_{it} + \beta_4 Borr_{it} + \beta_5 PIBpc_{it} + \beta_6 Infl_{it} + \beta_7 Trad_{it} + \beta_8 Pop_{it} + \mu_{it}$ (2)

he dependent variable, serving as a proxy for financial inclusion, is defined as the percentage of adults (aged 15+) who made or received a digital payment, based on data from the Global Findex Database 2021(World Bank, 2022), he financial access and usage variables include:

- Account (% age 15+),
- Saved at a financial institution (% age 15+),
- Borrowed from a formal financial institution (% age 15+).

The main explanatory variable is fixed broadband subscriptions (per 100 people), used as a proxy for technological advancements driving financial inclusion. Additionally, several control variables are incorporated to provide a broader view of the factors influencing financial inclusion:

• **Economic growth**, proxied by GDP per capita, has been shown in previous studies(Beck et al., 2007), (Demirguc-Kunt et al., 2015) y (Sarma, M. & Pais, J., 2011) to enhance financial inclusion. As national income rises, financial institutions tend to expand into previously underserved segments due to increased demand for formal financial services. However, Park, C. Y. & Mercado (2018)

• **Inflation** is included because high and volatile inflation undermines financial inclusion by eroding trust in financial institutions, discouraging formal savings, and restricting access to credit (Boyd et al., 2001); (Lane & Honohan, 2003) . In contrast, low and stable inflation promotes financial intermediation by fostering a predictable environment for planning and access to financial services (Khan et al., 2006).

• **International trade openness** is considered due to its potential to stimulate economic activity and modernize the financial system through institutional strengthening and technological development. Greater openness facilitates cross-border transactions, reduces financing costs, and enables access to external funding, digital payment systems, and financial insurance—enhancing the competitiveness of domestic firms(Rajan & Zingales, 2003), (Chinn, Menzie D. & Ito, H., 2008), (Sahay, RSahay@imf.org, et al., 2015) and (Le et al., 2015).

• Population size is also included, as demographic characteristics and geographic distribution influence both the supply and demand of financial services. In countries with large populations and high levels of informality, extending financial infrastructure to rural or low-income areas can be costly and may limit coverage (Demirgüç-Kunt & Klapper, 2013). En países con grandes poblaciones y alta informalidad, los costos de extender infraestructura financiera a zonas rurales o de bajos ingresos pueden limitar la cobertura (Allen et al., 2016); pero, por otro, lado una población amplia también puede generar economías de escala que favorecen la innovación digital, facilitando el acceso a través de canales como las Fintech (Sarma, M. & Pais, J., 2011).

Variable	Name	Description	Source
FinIn	Financial	Percentage of persons (age 15+) who report	The Global Findex
	Inclusion	using mobile money, a debit or credit card, or	Database
		a mobile phone to make a payment from an	
		account, or report using the internet to pay	
		bills or to buy something online.	
FinT	Financial	Fixed subscriptions (per 100 people) to high-	International
	Technology	speed access to the public Internet (a TCP/IP	Telecommunication
		connection), at downstream speeds equal to,	Union (ITU)
		or greater than, 256 kbit/s.	
Acou	Account	Percentage of persons (age 15+) who report	The Global Findex
		having an account at a bank or another type of	Database
		financial institution or report personally using	
		a mobile money service.	

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Sav	Saving	Percentage of persons (age 15+) who report saving or setting aside any money at a bank or another type of financial institution.	The Global Findex Database
Borr	Borrowing	Percentage of persons (age 15+) who report borrowing any money from a bank or another type of financial institution.	The Global Findex Database
РІВрс	Economic Growth	Annual percentage growth rate of GDP per capita based on constant local currency.	World Bank
Infl	Inflation	Annual growth rate of the implicit GDP deflator, which shows the rate of price change in the economy as a whole	World Bank
Trad	Trade	Sum of exports and imports of goods and services, measured as a proportion of gross domestic product	World Bank
Pop	Population	Total population growth rate	World Bank
μ_{it}	Estimation Error	Disturbance term for country i and period t .	

Table 1. Variables And Data Sources

Note. Own elaboration

Results

Descriptive Statistics

Table 1 summarizes the main descriptive statistics for the panel dataset used in this study. The variable financial inclusion, measured as the percentage of individuals aged 15 and above with access to formal financial services, exhibits a mean of 35.1%, with a standard deviation of 22.3 percentage points, and a range from 0.3% to 84.2%. This wide dispersion reflects substantial heterogeneity in financial inclusion levels across countries and over time.

Regarding financial technology, proxied by the number of fixed broadband subscriptions per 100 people, the data show a relatively low average of 10, with a maximum of 38, indicating that most economies in the sample still face early stages of digitalization. This limited digital infrastructure constitutes a significant barrier to achieving equitable access to digital financial services.

Among the financial access variables, account ownership shows the highest development, with an average of 45% of the adult population holding an account. In contrast, the average rates for formal saving and borrowing are significantly lower, at 14% and 15% respectively. These figures underscore that access to financial services does not necessarily translate into active use.

As for the macroeconomic control variables, economic growth shows a moderate average but with substantial variation across countries. Inflation displays high volatility, with extreme cases exceeding 1300%, reflecting episodes of hyperinflation in some economies. International trade openness averages 82% of GDP, suggesting a relatively high level of external integration, though considerable differences exist across countries. Lastly, population size shows a high standard **Journal of Posthumanism**

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Variable	Mean	Std. Dev.	Min	Max
Financial Inclusion	0,37158	0,15488	0,10992	0,84287
Digital Infrastructure	0,09598	0,07067	_	0,32545
Account	0,44795	0,16709	0,13765	0,87062
Saving	0,12791	0,05183	0,03801	0,31084
Borrowing	0,17730	0,08183	0,01727	0,42008
PIB	0,04273	0,03578	-0,03513	0,15070
Inflation	0,07369	0,08559	0,00932	0,53802
Trade	0,54434	0,24175	0,18456	1,17795
Population	0,01139	0,00515	-0,00067	0,02088

deviation (41.7%), due to the inclusion of both large countries (e.g., Mexico, Brazil) and small countries (e.g., Uruguay), highlighting demographic diversity within the region.

Table 2. Descriptive Statistics

Note. Own elaboration based on the results obtained

Graphical Analysis

In addition, Figure 1 presents a scatter plot analysis that explores the relationship between financial inclusion and the key explanatory variables: digital infrastructure, account ownership, formal saving, and formal borrowing..

The first panel shows a positive and increasing association between the development of digital infrastructure and levels of financial inclusion. This suggests that as digital service penetration increases, access to formal financial services also expands. However, some dispersion is observed at lower levels of infrastructure, implying that while digitalization is a key enabler, its effect is not automatic and may be conditioned by institutional factors or digital literacy.

The second graph reveals a strong positive correlation between the percentage of adults with bank accounts and overall financial inclusion. This association is the most robust among all variables, supporting the idea that account ownership is the first step toward integration into the financial system. Countries such as Chile and Brazil, which have high rates of bank account ownership, also exhibit the highest levels of financial inclusion.

The third graph also shows a positive but less pronounced and more dispersed correlation, especially at intermediate levels, between access to formal credit and financial inclusion. This suggests that not all countries with high financial inclusion necessarily exhibit high credit penetration. This could be related to risk management policies, labor informality, or structural constraints in the banking system.

The fourth graph displays a positive but more scattered relationship between formal saving and financial inclusion. Countries with higher financial inclusion levels tend to have higher saving rates. However, most countries are clustered at low levels of both saving and financial inclusion, highlighting a structural challenge related to financial education and trust in the banking system.

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Chart 1. Financial Inclusión Panel

Econometric Modeling Results

Table 2 presents the results from the estimation of five panel data models using the random effects method, with corrections for heteroskedasticity and first-order autocorrelation through the Generalized Least Squares (GLS) estimator. In all models, the dependent variable is the financial inclusion index, expressed as the percentage of adults aged 15 and above with access to formal financial services in Latin American and Caribbean countries.

Model 1 includes all explanatory variables and is the most robust specification. It shows that digital infrastructure, account ownership, and formal saving are statistically significant predictors (at the 1% level), making them the main determinants of financial inclusion. In contrast, macroeconomic variables do not exhibit statistical significance, indicating that structural factors within the financial system play a more decisive role in financial inclusion than general macroeconomic conditions.

Model 2 includes only the technological innovation variable and macroeconomic controls. The results confirm that digital infrastructure has a positive and statistically significant effect on financial inclusion, supporting the hypothesis that greater availability of digital technology facilitates access to financial services. However, GDP per capita, inflation, trade openness, and population size do not show significant effects, suggesting that general macroeconomic conditions may not directly influence financial inclusion in the region under this specification.

Model 3 evaluates the impact of the use of financial products on financial inclusion. Results indicate that the percentage of adults with bank accounts has a positive and highly significant effect, while macroeconomic variables remain insignificant—except for population, which shows a negative and significant relationship with financial inclusion.

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In Model 4, formal saving also proves to be significant (at the 1% level) and positively associated with financial inclusion. Most macroeconomic variables remain insignificant, except for the population growth rate, which continues to exhibit a negative relationship. This supports the notion that account ownership and savings are the initial stages of financial inclusion processes, whereas population dynamics might pose structural constraints.

Finally, Model 5 includes formal credit as the main explanatory variable. This variable does not show statistical significance, suggesting that access to formal credit is typically obtained by individuals who are already financially included, often following account ownership and saving behaviors. These latter two appear to be the primary drivers of financial inclusion in the countries analyzed.

The overall fit of the models is satisfactory, particularly in Model 1, which reports a global R² of 0.779, indicating that approximately 78% of the variation in financial inclusion can be explained by the included variables. From a policy perspective, the findings suggest that strengthening digital infrastructure, promoting formal saving, and expanding access to bank accounts are effective strategies for advancing financial inclusion in the region-beyond changes in economic growth or broader macroeconomic indicators. The variance decomposition into overall, between-country, and within-country components provides key insights into the structural or dynamic nature of each variable. Financial inclusion exhibits greater variability between countries (between = 19.9 percentage points) than within countries over time (within = 9.8), suggesting that structural factors—such as institutional development, regulatory frameworks, and macroeconomic stability-are major determinants. However, the withincountry variation also indicates dynamic changes in some countries during the period analyzed. Digital infrastructure follows a similar pattern, with higher between-country variance (6.0), reinforcing its structural character, shaped by investments in connectivity, digital literacy, and institutional capacity. Access to financial services (accounts, savings, credit) also shows higher between-country heterogeneity—for example, account ownership (between = 22.0) is closely linked to banking infrastructure and financial system reach. Nevertheless, the within-country variance in savings and credit use highlights the impact of specific financial inclusion policies over time. Per capita GDP growth and trade openness display a mixed variance structure, with significant between and within components. In contrast, inflation shows the highest withincountry variation, reflecting the region's macroeconomic volatility driven by internal and external shocks, monetary policy shifts, and crisis episodes.

	1	2	3	4	5
Financial Inclusion	Todas las variables	Digital Infrastructu re	Account	Saving	Borrowing
Digital Infrastructu re	0,3527801 ***	1,0972912 ***			
	(0,0976154)	(0,2800207)			
Account	0,815526 ***		0,8964568 ***		
	(0,0339004)		(0,0205917)		
Saving	-0,0964143			1,541904 ***	

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	(0,0807834)			(0,2263988)	
Borrowing	0,0215587				0,7536224 ***
	(0,0370737)				(0,1429999)
PIB	0,164265**	0,1776025	0,0223211	0,1382278	0,8158532 ***
	(0,0732106)	(0,2559443)	(0,0865031)	(0,2471959)	(0,2461672)
Inflation	0,0185293	0,0747799	0,0538342	0,3794354 ***	0,1546772
	(0,0460018)	(0,1701632)	(0,0502502)	(0,0869716)	(0,1185131)
Trade	0,0369556*	-0,0398923	0,0283524	-0,1057738 **	-0,1262945 **
	(0,0221154)	(0,059739)	(0,0229938)	(0,0471338)	(0,0512223)
Population	-1,258697	2,0862846	-3,544252 ***	-1,079689 ***	-4,69519
	(0,953003)	(3,0305345)	(0,8673055)	(3,227168)	(3,346257)
_cons	-0,0316263 **	0,149656	-0,009274	0,3217247 ***	0,2988549 ***
	(0,0183281)	(0,071337) **	(0,0168309)	(0,0589589)	(0,0673803)
R-sq:					
within =	0.9386	0.7246	0.9354	0.4204	0.3479
between =	0.9469	0.5375	0.9291	0.5665	0.4209
overall =	0.9412	0.5722	0.9294	0.4922	0.3612
Wald chi2(5)	912.62	113.72	859.54	52.71	4.91
Prob > chi2	0.0000	0.0000	0.000	0.000	0.000
sigma_u	0.0281605	0.06811016	0.3138327	0.06263135	0.10172993
sigma_e	0.03284872	0.066948	0.03251398	0.09877811	0.10540894
Rho	0.4236067	0.50860423	0.48230978	0.28675023	0.48224452

Table 2. Model Results

Significance level: *** 1%, ** 5%, * 10%

It can be concluded that the results of the models show consistency in the importance of digital infrastructure and formal access to the financial system, represented by account ownership and the ability to save. Macroeconomic variables, despite their theoretical relevance, do not show statistically significant effects in any of the models, with the exception of population, which suggests that the specific structural conditions of the financial system and technological capabilities carry more weight than the overall macroeconomic environment. The most robust model is Model 1, which incorporates the FinTech variable, financial variables, and macroeconomic variables, allowing for simultaneous control of structural factors as well as

usage and access variables, while maintaining significance in the key variables and achieving a good overall fit, with 77.9% of the variation explained by the variables used..

discussion of Results

The findings of this study, based on both the descriptive analysis and econometric modeling for 14 Latin American countries, reveal that FinTech has a significant and positive effect on financial inclusion. This outcome aligns with recent studies such as the Mastercard (2024) report, which highlights the critical role FinTech companies have played in promoting financial inclusion in Latin America by offering accessible and innovative financial services, particularly to underserved populations who have gained access to financial products previously unavailable to them.

Similarly, Beyer (2023) in research conducted for the University of Washington, underscores that digital banking plays a vital role in economic development by enabling greater inclusion for individuals living in poverty—particularly in Latin America. However, the magnitude of this impact depends on factors such as digital literacy and technological access.

These findings are consistent with the conclusions of Demirguc-Kunt et al. (2018) and Andrianaivo & Kpodar (2011) who determined that technological availability is a key enabler of access to financial services. The spread of mobile technologies has reduced traditional barriers related to geographic dispersion and high transaction costs, allowing for greater penetration of formal financial products, particularly in developing economies. As such, digitalization represents an efficient pathway for extending financial access to large segments of the population historically excluded from the traditional banking system. The relevance of financial technologies to financial inclusion is also supported by Pazarbasioglu et al. (2020) who state that FinTech drives digital financial services by lowering costs through economies of scale, increasing speed, security, and transaction transparency, and enabling more personalized services for people in poverty. In the long term, this is expected to contribute to economic development and poverty eradication.

Regarding the financial variables examined in this study, bank account ownership and formal saving were found to have a positive and significant influence on financial inclusion, while access to formal credit did not show a statistically significant relationship. These results are consistent with the recent literature. The World Bank (2023) affirms that the expansion of bank accounts has helped overcome traditional barriers related to geography and transaction costs, thereby enabling greater formal financial penetration, as a transaction account is often the first step toward broader financial inclusion. Studies such as Asuming et al. (2019a), Sanderson et al. (2018), Asuming et al. (2019b) and Barajas et al. (2020) ave shown that bank account access plays an important role, with macro- and microeconomic benefits arising from increased financial inclusion. These benefits include the ability to store money, send and receive payments, access other financial services, and facilitate government transfer programs.

Regarding formal saving, the findings align with those of the Economic Commission for Latin America and the Caribbean (CEPAL, 2018), which highlights the importance of formal saving in advancing financial inclusion by enhancing economic stability and long-term planning capacity. Likewise, the National Banking and Securities Commission of Mexico (2020) ound that saving within financial institutions improves household stability and capacity to respond to emergencies. In Mexico, participants in financial inclusion programs who saved directly in their bank accounts reported income increases of 20% to 30%. As for credit, multiple studies have

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shown that formal loans have limited influence on financial inclusion processes, which aligns with findings from (Roa & Mejía, 2018) who argue that credit access typically occurs at later stages in the inclusion process, depending on a pre-existing relationship with financial institutions. In addition, Hasan et al. (2023) analyzing 144 countries, concluded that credit literacy significantly influences access to and use of financial products, especially among low-income populations.

Finally, the macroeconomic variables used in the models—such as GDP per capita, inflation, trade openness, and population—did not show statistically significant relationships with financial inclusion. This result is consistent with Beck et al. (2007), who argue that economic development alone does not guarantee inclusive access to financial services, as this access may be mediated by institutional, structural, and technological factors beyond the general macroeconomic environment. Similar perspectives are presented by Sahay Cihak, et al. (2015), who caution that economic growth alone is not enough to foster inclusion without accompanying institutional reforms and technological advancements that promote effective financial access.

These findings also reflect the limitations of conventional economic policy in promoting financial inclusion, as discussed by Allen et al. (2016). They advocate for policy design that goes beyond macroeconomic stability to actively promote digital ecosystems that foster inclusion— particularly in regions like Latin America, which face high levels of inequality and geographic dispersion.

Conclusions

Access to affordable financial services is essential for poverty reduction and economic growth. Countries with stronger and more developed financial systems tend to experience higher levels of growth and more significant reductions in poverty and income inequality. For people living in poverty, access to and use of basic financial services can improve income, strengthen resilience, and enhance overall quality of life. In this context, financial technologies emerge as effective tools due to their low cost, ease of implementation, and ability to expand access to financial services even in geographically dispersed areas.

In Latin America, ownership of bank accounts and formal saving habits are key drivers of financial inclusion, as they facilitate access to basic services and enable greater participation in the formal economy. In contrast, formal credit access does not show a statistically significant relationship with early stages of financial inclusion, suggesting that credit is more a result than a driver of inclusion.

It is therefore recommended to implement government programs that promote the opening of low-cost or free savings accounts, particularly targeting low-income populations and rural areas. Additionally, governments should foster the design of accessible financial products tailored to the needs of vulnerable groups, such as youth, women, and informal workers. These initiatives, combined with nationwide financial education programs and strengthened financial regulation and supervision, can enhance consumer protection and increase trust in the formal financial system.

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