

The Effect of FinTech Adoption and Financial Inclusion in Emerging Economies

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ABSTRACT

This study critically examined the relationship between FinTech adoption and financial inclusion in emerging economies, drawing upon a wide body of recent literature. The findings clearly indicate that FinTech has significant potential to democratize financial services and close access gaps among underserved populations. Mobile technologies, digital wallets, and alternative credit systems have already demonstrated tangible impacts in improving economic participation and financial well-being. However, the review also underscores that the benefits of FinTech are not automatically realized. Adoption is influenced by financial literacy, demographic profiles, and institutional readiness. Without addressing these contextual factors, the digital revolution risks leaving behind those most in need of financial inclusion. Hence, a singular focus on technological innovation is insufficient; instead, it must be accompanied by inclusive design principles, regulatory safeguards, and user-focused education programs. FinTech offers a promising pathway to achieving financial inclusion in emerging markets, but realizing this promise requires a coordinated and inclusive ecosystem approach. Future research should focus on longitudinal and mixed-method studies that capture the dynamic and contextual nature of FinTech adoption. Moreover, policymakers and stakeholders must prioritize equitable access, user empowerment, and ethical governance to ensure that FinTech contributes meaningfully to inclusive and sustainable development.

JEL Classification: G21, G23, O16, O33, D14, E58, & L86.

1. Introduction

The advent of financial technology (FinTech) has initiated a paradigm shift in the delivery and accessibility of financial services globally, particularly within emerging economies. These regions, traditionally underserved by formal financial institutions, are experiencing accelerated financial transformation due to the rise of digital platforms such as mobile banking, blockchain, artificial intelligence, and digital wallets. FinTech not only redefines how individuals and businesses interact with financial systems but also holds the promise of improving financial inclusion by reaching previously excluded populations. This technological revolution plays a critical role in bridging gaps in access to credit, savings, insurance, and

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other financial services, thereby promoting economic participation and resilience. Despite the growing adoption of FinTech solutions, its integration in emerging economies presents both opportunities and challenges that warrant systematic investigation. Emerging economies often face structural barriers such as underdeveloped banking infrastructure, limited access to financial services, and low financial literacy, which hinder socioeconomic development. FinTech, by leveraging innovations in mobile connectivity and digital finance, offers viable solutions to these barriers. Empirical studies suggest that mobile money platforms, peer-to-peer lending, and digital payments have positively impacted individuals and small and medium-sized enterprises (SMEs), enabling them to transact, save, borrow, and invest more efficiently (Zhang, 2024; Rehman et al., 2024; Asif et al., 2023).

The COVID-19 pandemic further underscored the value of digital finance by accelerating FinTech adoption across various sectors and showcasing its role in enhancing business continuity and financial resilience (Koloseni & Mandari, 2024; Sharma et al., 2024). However, despite these advancements, many SMEs and rural populations still face challenges in fully leveraging FinTech due to issues such as poor digital infrastructure, limited trust in digital services, and lack of targeted financial education (Morgan & Trinh, 2019; Belgacem et al., 2024). Moreover, demographic factors such as age, education, and income influence FinTech adoption, with younger and more educated populations more likely to embrace digital financial tools (Nguyen, 2022; Nangin et al., 2020). Thus, while FinTech presents a promising avenue for financial inclusion, its successful deployment depends on tailored strategies that consider local contexts, regulatory frameworks, and user capabilities. Although FinTech is widely regarded as a transformative tool for fostering financial inclusion in emerging markets, significant disparities remain in its adoption and effectiveness across different socioeconomic groups. Many studies highlight the positive association between FinTech use and financial accessibility; however, evidence also suggests that technological, infrastructural, and educational limitations prevent widespread uptake and sustained usage of these services. There is a notable research gap in understanding the nuanced relationship between FinTech adoption and financial inclusion, particularly in relation to demographic variables and digital literacy levels. Additionally, the impact of FinTech on sustainable development outcomes remains underexplored, especially regarding how inclusive and equitable these technologies truly are in practice. Thus, this study seeks to address the following critical questions: To what extent does FinTech adoption influence financial inclusion in emerging economies? What are the key enablers and barriers to FinTech usage among underserved populations? And how can policymakers and financial service providers design interventions that ensure inclusive, sustainable, and impactful FinTech ecosystems?

2. Literature Review

The rapid advancement of FinTech has significantly transformed the financial landscape, particularly in emerging economies where traditional financial services have historically struggled to achieve widespread reach. FinTech has emerged as a powerful catalyst for financial inclusion by democratizing access to financial services for unbanked and underbanked populations. The interplay of mobile phone penetration and digital financial innovation has created substantial opportunities for individuals and small to medium enterprises (SMEs) previously excluded from formal financial systems (Odei-Appiah et al., 2022; Rehman et al., 2024).

2.1 FinTech Adoption in Emerging Economies

FinTech adoption in emerging markets encompasses a broad range of technologies, including mobile payments, blockchain platforms, peer-to-peer lending, robo-advisory services, and digital wallets. These tools offer inclusive, low-cost, and scalable alternatives to traditional banking, thus filling significant service gaps (Zhang, 2024; Puzhakkal & Sivansankaran, 2024). The COVID-19 pandemic further accelerated FinTech usage by highlighting the need for contactless, resilient financial systems that could support remote transactions and mitigate economic shocks (Sharma et al., 2024; Koloseni & Mandari, 2024). However, adoption levels vary widely due to differences in infrastructure, regulation, and user trust (Ng et al., 2022;

Nangin et al., 2020).

2.2 Financial Inclusion: Definition and Importance

Financial inclusion refers to the ability of individuals and businesses to access and use appropriate financial products and services at affordable costs. These services include savings, credit, insurance, and payments, and are considered essential for poverty alleviation and economic empowerment, especially in line with the Sustainable Development Goals (Vergara & Agudo, 2021). In emerging economies, where rural and marginalized populations often lack access to formal banking services, FinTech has proven instrumental in lowering transaction costs and expanding accessibility through mobile banking and digital payment systems (Asif et al., 2023; Odei-Appiah et al., 2022).

2.3 Relationship Between FinTech and Financial Inclusion

There is growing empirical evidence of a positive relationship between FinTech adoption and financial inclusion. Studies confirm that FinTech enhances service delivery, reduces transaction costs, and fosters trust among users, especially those hesitant to engage with conventional banks (Zhang, 2024; Pandey et al., 2022). Additionally, FinTech platforms often use alternative data for credit scoring, enabling SMEs and individuals without formal credit histories to access financing (Morgan & Trinh, 2019; Belgacem et al., 2024). However, the realization of these benefits is highly dependent on digital infrastructure quality, user literacy, and regulatory environments (Demir et al., 2020; Wicaksana, 2023).

2.4 Financial Literacy as a Mediator

Financial literacy is increasingly viewed as a crucial enabler and mediator of FinTech success. It encompasses the knowledge and skills needed to make sound financial decisions. Research shows that individuals with higher financial literacy are more likely to adopt FinTech services effectively and sustainably (Nguyen, 2022; Belgacem et al., 2024). Conversely, limited financial and digital literacy (particularly in rural and older populations) can create barriers to adoption and deepen the digital divide (Antwi-Boampong et al., 2022). Educational interventions integrated into FinTech strategies have shown promise in improving adoption rates and empowering users (Swaroop et al., 2023; Nanda & Yunus, 2024). Demographic factors such as age, education level, income, and occupation significantly affect FinTech adoption. Younger, tech-savvy, and more educated individuals are typically more comfortable engaging with digital financial platforms (Nangin et al., 2020; Ng et al., 2022). Additionally, institutional readiness—including digital policy frameworks, cybersecurity systems, and consumer protection laws—plays a pivotal role in enabling sustainable FinTech ecosystems (Bayram et al., 2022). Studies further show that national strategies that align FinTech innovation with user education and infrastructure development yield higher inclusion outcomes (Antwi-Boampong et al., 2022; Zhong-qing et al., 2019).

Despite the clear promise of FinTech, its impact on sustainable development remains complex and uneven. While some studies highlight strong economic and social gains, others point to inconsistent outcomes and data limitations (Demir et al., 2020; Wicaksana, 2023). There remains a need for deeper, context-specific research exploring how FinTech adoption intersects with socioeconomic variables, user behavior, and institutional capacity in emerging economies (Nanda & Yunus, 2024; Amnas et al., 2024). Without addressing these gaps, FinTech may risk reinforcing rather than reducing financial exclusion. Thus, the literature indicates that FinTech has transformative potential for enhancing financial inclusion in emerging economies. However, successful adoption requires more than technology alone. It depends on the convergence of digital infrastructure, demographic readiness, regulatory support, and especially financial literacy. Continued research and policy engagement are necessary to ensure that FinTech systems are inclusive, trustworthy, and adaptable to diverse economic realities.

3. Methodology

Previous studies investigating the intersection of FinTech adoption and financial inclusion in emerging economies have predominantly employed quantitative, cross-sectional research designs, often grounded in survey-based methodologies. This approach has been considered appropriate due to its capacity to test hypotheses and statistically examine the relationships between constructs such as FinTech usage, financial literacy, and access to formal financial services (Zhang, 2024; Rehman et al., 2024). A cross-sectional design, which captures data at a single point in time, was frequently adopted to reflect current user behaviors, technology adoption levels, and financial inclusion status across different demographic groups. Research in this domain typically targeted populations consisting of individual users and SME owners who were exposed to or had adopted some form of digital financial service. Most studies focused on emerging economies in Asia (e.g., India, Indonesia), Africa (e.g., Kenya, Ghana), and Latin America (e.g., Colombia, Peru)—regions where digital transformation was ongoing but uneven, making them ideal for comparative exploration of adoption barriers and enablers (Koloseni & Mandari, 2024; Odei-Appiah et al., 2022). To ensure relevance and specificity, purposive sampling was widely used. This technique allowed researchers to selectively recruit participants with a minimum level of experience with FinTech platforms, such as mobile banking, e-wallets, or digital lending tools. Studies aiming for structural equation modeling (SEM) commonly worked with sample sizes ranging from 200 to 400 respondents, a range justified by both statistical modeling requirements and recommendations from methodologists working with PLS-SEM (Morgan & Trinh, 2019).

Data collection was generally conducted using online structured questionnaires, a format aligned with the digital nature of the study population. Questionnaires were distributed via email, FinTech platforms, and social media, enabling researchers to reach diverse groups in urban and rural areas while maintaining cost-efficiency. Pre-testing of the instruments with pilot groups (often $n = 20\text{--}30$) was a standard practice to ensure clarity, consistency, and face validity of the items (Swaroop et al., 2023; Belgacem et al., 2024). The survey instruments in these studies were typically divided into several thematic sections. A common structure included:

- Demographic profiles, capturing variables such as age, gender, education, income, and digital experience.

- FinTech adoption measures, often adapted from established models such as the Unified Theory of Acceptance and Use of Technology (UTAUT) or derived from prior empirical work (Zhang, 2024; Asif et al., 2023).

- Financial inclusion indicators, capturing access, usage, and perceived quality of financial services (e.g., savings, credit, insurance).

- Financial literacy scales, frequently drawn or adapted from OECD/World Bank tools.

- Contextual factors, such as trust in institutions, perceived regulatory support, and infrastructure access.

These items were usually measured on a five-point Likert scale (from “strongly disagree” to “strongly agree”), enabling quantitative assessment of subjective perceptions and behaviors. In terms of data analysis, most studies followed a three-stage process. First, descriptive statistics were used to profile the respondents and summarize key patterns. Second, reliability and validity of the constructs were evaluated using measures like Cronbach’s alpha, Composite Reliability (CR), and Average Variance Extracted (AVE). Third, the hypotheses were tested using SEM, with Partial Least Squares (PLS-SEM) being the preferred method due to its flexibility with complex models and non-normal data. Software such as SmartPLS was commonly employed, with bootstrapping (e.g., 5,000 resamples) used to assess the significance of path coefficients and indirect effects (Wicaksana, 2023; Demir et al., 2020). Furthermore, ethical standards were widely observed, with researchers ensuring informed consent, anonymity, and voluntary participation. Data protection protocols were followed rigorously, especially in studies involving online data collection, where cybersecurity and privacy concerns are paramount. The dominant methodological trend in FinTech-financial inclusion research has favored quantitative, survey-based approaches with a strong reliance on SEM tools to capture complex interrelationships. While this approach provides statistical rigor and model-testing capabilities, it may also benefit from integration with qualitative insights in future studies to better capture

contextual and behavioral nuances.

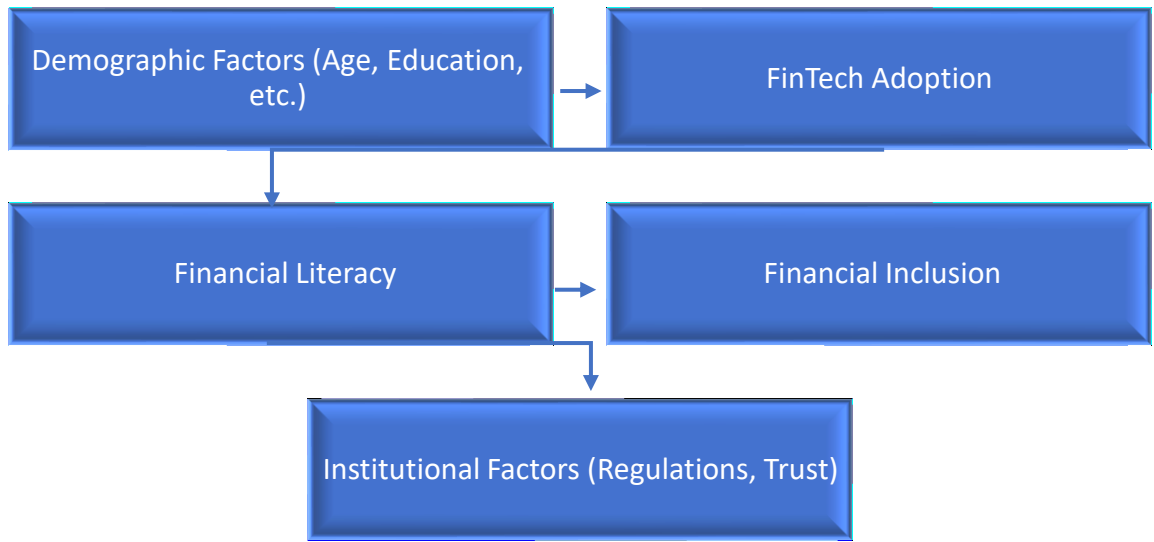


Figure 1: Conceptual Framework Synthesized from Prior Studies

This framework illustrates the integrated findings of previous studies, highlighting the direct effect of FinTech adoption on financial inclusion, the mediating role of financial literacy, and the moderating influences of demographic and institutional factors. It reflects the multidimensional nature of FinTech integration in emerging economies, as documented in studies by Zhang (2024), Rehman et al. (2024), Belgacem et al. (2024), and others.

4. Findings

The systematic review of prior literature reveals several key findings that collectively underscore the complex but promising relationship between FinTech adoption and financial inclusion in emerging economies. These findings offer not only empirical insights but also theoretical grounding for the current study. First and foremost, the literature consistently highlights a positive and statistically significant relationship between FinTech adoption and financial inclusion. Digital financial tools—such as mobile banking, e-wallets, peer-to-peer lending, and blockchain applications—have been effective in reducing barriers to financial access, particularly in rural and underserved communities. Studies confirm that these technologies lower transaction costs, bypass traditional banking requirements, and provide more inclusive credit assessment models (Rehman et al., 2024; Zhang, 2024; Morgan & Trinh, 2019). Second, financial literacy has emerged as a critical mediating factor in this relationship. The ability of individuals to understand and utilize digital financial services is closely linked to their financial knowledge and digital

competence. Research has shown that higher financial literacy leads to more frequent and confident use of FinTech services, while a lack of literacy—particularly in older or low-income demographics—can hinder adoption and deepen exclusion (Nguyen, 2022; Belgacem et al., 2024; Antwi-Boampong et al., 2022). Educational interventions integrated into FinTech strategies have proven effective in improving outcomes. Third, demographic variables such as age, education level, and income have been found to significantly influence FinTech adoption. Younger users and those with higher education and disposable income demonstrate higher adoption rates and greater trust in digital services. Conversely, users with limited education or technological exposure are more likely to be excluded, suggesting the presence of a digital divide within emerging economies (Nangin et al., 2020; Ng et al., 2022).

Fourth, institutional and infrastructural readiness plays a moderating role in determining the success of FinTech implementation. Strong regulatory frameworks, reliable internet connectivity, data protection policies, and supportive government initiatives enhance trust and usability of FinTech platforms (Bayram et al., 2022; Wicaksana, 2023). Conversely, weak governance or regulatory ambiguity can discourage both users and investors. Fifth, the literature reflects that SMEs greatly benefit from FinTech access, particularly through easier access to capital and digital payment systems. These services not only improve operational efficiency but also enable SMEs to build credit histories, access new markets, and reduce dependency on cash transactions (Odei-Appiah et al., 2022; Asif et al., 2023). However, adoption among SMEs is still uneven due to limitations in digital literacy, infrastructure, and awareness. Sixth, despite the overall optimism, researchers have cautioned against overgeneralizing FinTech's impact, as its effectiveness is shaped by local socioeconomic, cultural, and regulatory conditions. Studies call for context-sensitive approaches and policies that account for intra-country disparities and ensure that FinTech does not inadvertently reinforce existing inequalities (Demir et al., 2020; Nanda & Yunus, 2024). Thus, the literature reveals that FinTech holds substantial promise in advancing financial inclusion in emerging economies. However, this potential is contingent on a range of mediating and moderating factors—most notably financial literacy, demographic characteristics, and institutional support. These findings affirm the need for integrated strategies that combine technological innovation with inclusive policy design and user-centric education to achieve sustainable financial inclusion.

5. Discussion

The findings of this review reaffirm the significant role FinTech plays in advancing financial inclusion within emerging economies. The discussion builds upon prior empirical and conceptual work, emphasizing how digital financial services have disrupted traditional banking paradigms and opened new avenues for underserved populations to access formal financial systems. A core theme that emerged is the positive correlation between FinTech adoption and financial inclusion, which has been documented across various regional contexts. Innovations such as mobile money, digital credit platforms, and blockchain-enabled systems have enabled individuals and SMEs to engage with financial products in ways that are affordable, accessible, and efficient. This supports earlier studies (e.g., Zhang, 2024; Rehman et al., 2024) that identified FinTech as a key enabler of financial access, particularly in rural and underserved areas. However, the discussion also highlights that FinTech is not a silver bullet. Its effectiveness in promoting inclusive finance is heavily conditioned by financial literacy, which mediates users' ability to navigate and trust digital financial platforms. As shown in studies by Belgacem et al. (2024) and Nguyen (2022), financial education significantly boosts adoption rates and fosters responsible financial behavior. This raises important policy implications: technological deployment without corresponding literacy initiatives may inadvertently widen existing inequalities. Additionally, demographic disparities such as age, income, and education play a moderating role in shaping FinTech usage. Younger, educated users adopt digital tools more rapidly, while older and less educated individuals remain excluded or hesitant. This pattern reflects a digital divide that continues to persist even in technologically progressive environments (Ng et al., 2022; Nangin et al., 2020). This insight reinforces the need for targeted inclusion strategies tailored to the characteristics of diverse user

groups. Furthermore, the discussion revealed that institutional and infrastructural factors, including regulatory clarity, internet accessibility, and trust in governance, significantly influence the scalability of FinTech. Countries with robust digital ecosystems and supportive financial regulations have experienced more successful integration of FinTech into their development agendas (Bayram et al., 2022; Wicaksana, 2023). In contrast, weak regulatory environments often stall progress, leaving gaps in consumer protection and systemic stability. Lastly, the role of SMEs as beneficiaries of FinTech deserves more nuanced attention. While many SMEs have benefited from improved access to financing and digital payments, barriers such as limited awareness and digital capacity persist. As highlighted in studies such as Asif et al. (2023), the effective digital transformation of the SME sector hinges not only on availability of FinTech tools but also on ecosystem-wide support—including training, infrastructure, and credit guarantees. Thus, the discussion suggests that FinTech can serve as a transformative tool for inclusive finance, but its success relies on a multi-dimensional strategy that integrates technology, education, regulation, and user engagement.

6. Conclusion

This study critically examined the relationship between FinTech adoption and financial inclusion in emerging economies, drawing upon a wide body of recent literature. The findings clearly indicate that FinTech has significant potential to democratize financial services and close access gaps among underserved populations. Mobile technologies, digital wallets, and alternative credit systems have already demonstrated tangible impacts in improving economic participation and financial well-being. However, the review also underscores that the benefits of FinTech are not automatically realized. Adoption is influenced by financial literacy, demographic profiles, and institutional readiness. Without addressing these contextual factors, the digital revolution risks leaving behind those most in need of financial inclusion. Hence, a singular focus on technological innovation is insufficient; instead, it must be accompanied by inclusive design principles, regulatory safeguards, and user-focused education programs. FinTech offers a promising pathway to achieving financial inclusion in emerging markets, but realizing this promise requires a coordinated and inclusive ecosystem approach. Future research should focus on longitudinal and mixed-method studies that capture the dynamic and contextual nature of FinTech adoption. Moreover, policymakers and stakeholders must prioritize equitable access, user empowerment, and ethical governance to ensure that FinTech contributes meaningfully to inclusive and sustainable development.

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