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Fintech and Financial Inclusion: Evidence from Emerging Markets

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Abstract

This study examines the developing relationship between financial technology (fintech) and financial inclusion in emerging economies. The financial sector has undergone rapid transformation due to fintech, which offers cutting-edge digital solutions that extend financial services to previously unbanked or underserved communities. By systematically reviewing relevant literature, this study underscores the positive impact of fintech in reducing barriers to financial access, reducing transaction costs, and improving the availability of credit, payments, and savings tools in emerging economies. Fintech also plays a significant role in empowering marginalized groups, supporting micro-entrepreneurs, and fostering digital financial ecosystems. Although progress has been made, inclusive growth is still hindered by several obstacles, including fragmented regulatory frameworks, limited digital infrastructure, cybersecurity threats, and a general lack of financial literacy. The findings offer significant insights for policymakers, financial institutions, and technological developers aiming to utilize fintech to enhance long-term financial inclusion. This research adds to the expanding literature by situating fintech's role in inclusive finance within the distinct economic and institutional frameworks of emerging markets, while also highlighting key areas for further study and policy action.

Keywords

Digital Finance, Emerging Markets, Financial Technology, Financial Inclusion.

1. Introduction

In many emerging economies, financial inclusion has become a central development goal, driven by the belief that access to formal financial services promotes economic growth, reduces poverty, and lessens social inequality. Inclusive finance refers to ensuring that banking, payment, credit, and insurance services are both available and accessible to all societal groups, especially low-income populations and underserved rural areas. Nevertheless, a significant global access gap persists, with regions like South Asia, the Middle East and North Africa (MENA), and Sub-Saharan Africa continuing to experience widespread financial exclusion and marked gender disparities in account ownership. In this setting, financial technology (fintech) is widely recognized as a game-changing force capable of providing financial services more cost-effectively and efficiently. Digital banking, e-wallets, mobile money, peer-to-peer lending, blockchain apps, and AI-powered solutions are just a few of the many advancements that fall under the umbrella of financial technology (Ediagbonya & Tioluwani, 2023).

In developing countries, the adoption of fintech has grown rapidly, driven by increasing mobile phone usage and internet penetration. Innovations such as mobile banking and e-money have successfully reached populations previously excluded from traditional financial institutions. Empirical studies consistently show that fintech contributes positively to financial inclusion by expanding account ownership, facilitating cashless transactions, and improving access to formal credit (Jha & Dangwal, 2024). Nonetheless, significant barriers persist limited digital literacy, cybersecurity vulnerabilities, and regulatory frameworks that are often inadequate to support the fintech ecosystem. Therefore, a thorough understanding is essential to explore how fintech advances financial inclusion, pinpoint the main challenges it encounters, and assess its policy impact in emerging markets.

This study aims to answer these questions through a Systematic Literature Review (SLR), drawing from over 40 peer-reviewed articles published in reputable journals (mostly indexed as Q1/Q2). The review process was supported using Watase Uake, a digital tool designed to assist researchers in managing, extracting, and synthesizing large volumes of academic literature. This paper offers a comprehensive synthesis of recent scholarly findings, identifies thematic patterns and divergences across studies, and presents relevant policy recommendations along with a proposed research agenda (Nguyen & Luong, 2023; Ha et al., 2025).

2. Literature Review

The Diffusion of Innovation (DOI) Theory, proposed by Rogers (1962), explains how new technologies are adopted and spread across different segments of society. This theory is particularly relevant in understanding the rapid adoption of fintech services in emerging markets, where factors such as relative advantage, compatibility, and observability significantly influence user acceptance. Setiawan et al. (2024) highlight that perceived usefulness and trust are key drivers of fintech adoption among women in Indonesia, aligning with the DOI framework. Similarly, Okello et al. (2024) found that digital literacy acts as a moderating factor that enhances the adoption and diffusion of mobile-based fintech in rural Uganda, highlighting the role of knowledge and communication in DOI.

Technological advancements such as mobile banking, digital wallets, peer-to-peer lending, and blockchain have significantly expanded financial access for unbanked populations. For instance, fintech solutions have proven effective in overcoming barriers related to geography and limited banking infrastructure, particularly through mobile-based platforms (Ediagbonya & Tioluwani, 2023). A comprehensive analysis of 57 scholarly studies highlights a consistent association

between fintech services and improvements in account ownership, credit accessibility, and engagement with formal financial systems (Jha & Dangwal, 2024).

Financial technology has emerged as a pivotal instrument in mitigating financial exclusion, particularly among socioeconomically disadvantaged groups such as women, youth, and rural populations, by facilitating greater access to inclusive and affordable financial services. In Indonesia, factors such as perceived usefulness, trust, and brand image have been found to significantly influence women's willingness to adopt digital financial services, despite financial literacy not having a direct effect on their adoption decisions (Setiawan et al., 2024). In rural Uganda, the adoption of fintech among underserved communities improves significantly when users have digital literacy, which serves as a moderating factor between technology use and financial inclusion (Pandey et al., 2023; Okello et al., 2024). In the Middle East and North Africa region, young people and women continue to face significant financial exclusion, emphasizing the importance of inclusive product development and targeted financial education initiatives (Berguiga & Adair, 2024).

Despite its transformative potential, fintech adoption in emerging economies continues to face substantial obstacles. Major challenges involve insufficient digital infrastructure, limited financial and digital literacy, and restrictive regulatory frameworks. A case study of Wala, a blockchain-based fintech initiative in Africa, illustrates how lack of funding, poor digital infrastructure, and low public trust can impede fintech implementation, even when the underlying technology is promising (di Prisco & Strangio, 2021). Likewise, strict regulatory frameworks and entrenched social norms, especially those related to gender continue to pose major obstacles to achieving inclusive digital finance in areas like the Middle East and North Africa (Ezzahid & Elouaourti, 2021; Menza et al., 2024; Elouaourti & Ibourk, 2024).

Fintech-enabled financial inclusion has been linked to positive economic and social outcomes at both the macro and micro levels. Several studies highlight its role in enhancing household resilience, supporting entrepreneurship, and contributing to poverty reduction. The expansion of fintech services has led to improved financial inclusion in South Asia, which in turn reduces credit risk in microfinance institutions and boosts their institutional stability (Hussain & Rasheed, 2023). Other research highlights the role of digital financial inclusion in decreasing income inequality and advancing sustainable development goals (Rani et al., 2025).

The influence of fintech on financial inclusion differs significantly by region, shaped by institutional, cultural, and infrastructural factors. For instance, in Sub-Saharan Africa, Kenya has made notable progress through mobile money platforms like M-Pesa, while Ethiopia lags behind due to inadequate infrastructure and issues of trust (Bekele, 2023). Large-scale government programs like India's Jan Dhan Yojana have made significant strides in fostering inclusive financial ecosystems throughout Asia (Pradhan & Sharma, 2022). In contrast, the Latin American region benefits from comparatively higher levels of digital literacy, which supports broader fintech adoption (Adel, 2024). Meanwhile, the MENA region continues to face persistent gaps due to cultural constraints and digital inequality (Elouaourti & Ibourk, 2024).

3. Methods

This study examines the connection between financial technology (fintech) and financial inclusion in developing economies using a Systematic Literature Review (SLR) approach. The SLR approach was selected due to its structured and repeatable methodology for identifying, assessing, and synthesizing pertinent academic literature. The review focused on peer-reviewed journal articles written in English and indexed in Scopus from Q1 and Q2. To support the literature selection process, the researcher utilized the Watase UAKE web tool, which facilitates automated screening and metadata extraction.

The initial search used several keywords such as “financial technology,” “financial inclusion,” “digital finance,” “developing countries,” “economic justice,” and “inclusive finance.” A total of 422 articles were retrieved from Scopus and other sources. After screening based on title, abstract, relevance, indexing, and publication year (2022–2025), a refined list of 32 relevant articles was selected. Among them, 32 articles were sourced through the Watase UAKE tool, while the remaining were identified manually. Articles that did not align with the predefined inclusion criteria or were identified as duplicates were systematically excluded from the analysis.

4. Results

4.1. Financial Technology's Contribution to Improving Financial Inclusion

Figure 1 outlines the sequential process of identifying, screening, evaluating eligibility, and selecting articles for inclusion. The systematic review ultimately incorporated high-quality studies that provided both empirical evidence and theoretical insights into the influence of fintech on financial inclusion across diverse emerging economies. These selected articles serve as the analytical basis for the thematic synthesis discussed in the next sections.

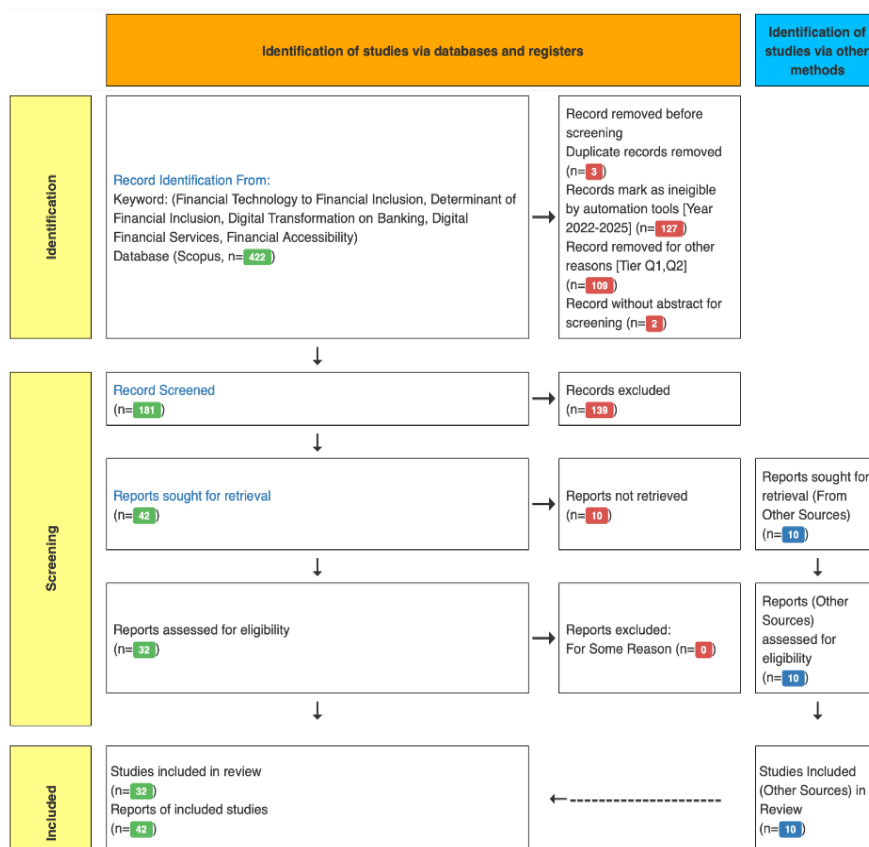


Figure 1. PRISMA Flow Diagram

The literature reviewed consistently identifies fintech innovations as pivotal catalysts for advancing financial inclusion in developing countries. Ranging from basic digital financial tools to sophisticated technologies, fintech has expanded access to financial services for populations that were once excluded from the formal financial sector. Mobile banking and electronic money (e-money) stand out as the most impactful technologies, particularly in regions with limited banking infrastructure. Internet usage, mobile phone penetration, broadband access, and

fixed-line subscriptions are examples of digitalization indicators that have had a statistically significant beneficial impact on financial inclusion in Sub-Saharan Africa. The success of M-Pesa in Kenya highlights how the widespread use of mobile money and digital agents is closely associated with increased account ownership and a rise in non-cash transaction frequency. An analysis comparing Ethiopia and Kenya demonstrates that Kenya's high penetration of mobile money is a critical differentiator in its superior financial inclusion rate. Fintech in this form effectively addresses geographic barriers by using mobile devices as channels for financial access. Ediagbonya and Tioluwani (2023) confirm fintech's potential to overcome barriers like distance and limited infrastructure through flexible digital solutions.

Blockchain and cryptocurrency technologies have also been explored for their potential to promote inclusion, albeit with mixed results. On one hand, blockchain offers transparency and cost efficiency that can reduce service costs for unbanked populations. Adel (2024) found that blockchain adoption is positively associated with financial inclusion in Asian contexts. However, real-world implementation, as seen in the case of the African fintech startup Wala, reveals barriers including digital divides, user distrust in emerging technologies, and underdeveloped infrastructure. These challenges ultimately led to Wala's failure, demonstrating that even promising technologies require a well-developed ecosystem to succeed. Meanwhile, cryptocurrency remains an ambivalent tool while it provides alternative financial access, its high volatility limits its inclusive potential.

Artificial Intelligence (AI) is now identified as the next frontier for digital financial inclusion. AI can enable financial service providers to design personalized products for underserved customers. According to Akanfe et al. (2025), AI technologies such as machine learning can enhance transaction security and provide financial education through generative AI tools like chatbots and automated credit scoring systems. Nevertheless, scholars warn that ethical and inclusive AI development is necessary to prevent reinforcing biases or exclusion.

Fintech adoption and improved financial inclusion are positively correlated, according to several research. According to Liu and Walheer (2022), financial technology plays a key role in enhancing financial access and promoting inclusive economic development through digital financial services. Particularly in underserved regions, fintech services have helped to improve important indicators including account ownership, the use of digital payments, and credit availability. In their systematic review of 57 studies, Jha and Dangwal (2024) affirm that fintech significantly contributes to advancing financial inclusion across developing countries. However, the literature emphasizes that technology alone is insufficient; its impact depends largely on broader systemic factors such as digital infrastructure, user readiness, and regulatory support.

4.2. Financial Inclusion for Vulnerable Groups

A substantial portion of existing research highlights the contribution of fintech to improving financial inclusion for disadvantaged groups such as women, youth, low-income households, and people with disabilities. Historically excluded due to socio-economic barriers, these groups have shown increasing levels of engagement with fintech, though persistent gaps remain.

The growth of digital financial services has enhanced women's financial inclusion by providing increased convenience and flexibility. According to a case study from Indonesia during the COVID-19 epidemic, women quickly embraced fintech once its advantages became evident. According to Setiawan et al. (2024), women's willingness to adopt fintech is largely shaped by perceived usefulness, trust, and brand image, whereas financial literacy has no direct effect on their adoption choices. In the MENA region, women and the elderly still face substantial digital exclusion due to low digital literacy and restrictive social norms. As a result, research suggests implementing gender-sensitive fintech designs and tailored digital literacy

initiatives to enhance women's financial empowerment and help bridge the enduring gender gap in financial access.

Youth populations, while more familiar with technology, are not automatically included in the formal financial system. In the Middle East, Berguiga and Adair (2024) report that young adults (ages 15–34) had lower rates of formal account ownership prior to the pandemic, although this gap narrowed significantly afterward, particularly among young women. Education and employment status are key determinants of digital financial inclusion among youth, with those in rural and low-education settings remaining at a disadvantage.

For low-income and remote communities, fintech models based on mobile agents have proven especially beneficial. Okello et al. (2024) highlight the success of biometric identification systems combined with mobile money in enabling access for rural, unbanked populations including poor women and individuals without formal identification documents. Digital literacy serves as a critical moderating factor: when present, the positive effect of fintech on inclusion is significantly amplified. Similar findings appear across other regional contexts, reinforcing the importance of empowering marginalized users through education and capacity-building.

While fintech has demonstrably expanded access for previously excluded groups, its benefits are not evenly distributed. Factors such as education, income, and occupation continue to influence the form and extent of financial access. A micro-level study in Morocco found that mobile banking was more prevalent among rural youth, while the uneducated or low-income populations often relied on informal channels. This suggests that fintech adoption must be complemented by social and economic interventions to ensure long-term inclusive outcomes.

4.3. Barriers and Challenges to Fintech Implementation

Despite its considerable potential, the implementation of fintech for inclusive finance in developing countries faces a series of structural and socio-political challenges. The literature consistently identifies major barriers such as limited digital and financial literacy, inadequate infrastructure, and fragmented regulatory frameworks. Digital literacy and trust deficits remain major hurdles to fintech adoption. Many unbanked individuals lack familiarity with even basic banking services, let alone digital finance tools. As a result, their limited understanding fosters low trust in fintech platforms. For example, in the case of Wala, distrust of new technology and inadequate infrastructure significantly impeded user adoption. In Ethiopia, limited awareness and a general distrust of formal institutions hinder financial inclusion, leading many individuals to prefer keeping their money outside the formal financial system.

Infrastructure constraints present another critical challenge. In many rural areas, internet connectivity, mobile network coverage, and electricity supply remain unreliable. Studies from West Africa indicate that the impact of digital money is strongest where supporting infrastructure is in place areas without such infrastructure remain financially excluded. Device ownership is also a concern: even with growing mobile penetration, the poorest segments may not possess smartphones capable of running fintech applications. Furthermore, the absence of verifiable identification common in low-income settings hampers onboarding processes and restricts access to digital financial services.

Additionally, regulatory settings have two functions. When poorly designed, they can stifle innovation and limit inclusion. Conversely, overly relaxed regulations may expose users to fraud or data misuse. Jha and Dangwal (2024) point out that weak and fragmented regulatory frameworks are a significant barrier to fintech-driven inclusion. Some countries have implemented taxes on mobile money transactions, which studies show can deter low-income users and reverse progress made toward digital inclusion (Mpofu & Mhlanga, 2022; Mhlanga, 2024; Nagaaba et al., 2025).

Cultural and social dynamics also play a critical role. According to Anyangwe et al. (2022), cultural traits like individualism and uncertainty avoidance notably shape cross-country variations in financial inclusion outcomes. In patriarchal communities, for example, women may lack the autonomy to engage with fintech services, regardless of their availability. These socio-cultural dynamics underscore the importance of localized product design and community engagement strategies. Fintech adoption is shaped by a multidimensional ecosystem. Literacy affects demand, infrastructure determines accessibility, and regulation governs operation. These factors are interdependent and addressing them holistically is essential for achieving meaningful financial inclusion.

4.4. Impact on Economic Development, Inequality, and Poverty Reduction

The literature broadly agrees that fintech-driven financial inclusion contributes positively to economic and social development. However, the scale and consistency of these impacts depend on enabling conditions, including infrastructure, policy, and user capability. Without adequate digital infrastructure or regulatory frameworks, fintech solutions may fail to reach underserved populations or could even exacerbate existing inequalities. Moreover, factors like digital literacy and trust in technology significantly influence user readiness, which in turn affects the success and inclusivity of financial innovations.

From a macroeconomic standpoint, inclusive finance helps direct savings and investments into productive sectors, fostering economic growth. Mohd Daud et al. (2024) report that financial inclusion positively influences GDP per capita, especially when paired with the adoption of digital technologies. Their findings suggest a threshold effect, where economic benefits materialize only after inclusion reaches a critical mass and is reinforced by digital penetration. Moreover, digital tools have helped reduce gender gaps in financial access, enhancing broader economic participation.

Suhrab et al. (2024) show that digital financial inclusion contributes to lowering the Gini coefficient in BRICS countries, with stronger impacts observed when supported by technological advancements and improved infrastructure. Fintech enables low-income groups to access affordable credit and payment services, potentially increasing their economic resilience. Without fair access and digital skills, fintech may deepen the digital divide. On poverty reduction, financial inclusion creates economic opportunities such as microenterprise financing and access to savings and insurance, which can improve household welfare. Digital channels enable more efficient and transparent distribution of government social assistance, especially during crises. At the micro level, Johri et al. (2024) report that digital financial inclusion enhances business operations for micro-entrepreneurs, resulting in greater productivity, higher earnings, and improved financial resilience during economic shocks.

Fintech also plays a role in strengthening institutional stability. Hussain and Rasheed (2023) highlight that increased fintech-driven inclusion lowers default risk for microfinance institutions (MFIs), especially smaller ones, by broadening their reach and improving credit evaluation processes. Beyond economic outcomes, emerging studies point to potential environmental benefits. Kuosuwan et al. (2024) argue that digital banking reduces operational carbon emissions by minimizing paper usage and physical transport. Although still under-researched, these findings suggest that fintech can support broader sustainable development goals.

4.5. Regional Perspectives: Africa, Asia, and Latin America

Fintech's influence on financial inclusion varies significantly across regions, shaped by local institutional, cultural, and technological conditions. These regional variations highlight the importance of contextual factors in determining the effectiveness of fintech solutions. For instance, regulatory openness, levels of mobile

connectivity, and socio-economic characteristics such as education and income distribution can either facilitate or hinder inclusive outcomes. Understanding these dynamics is essential for designing interventions that are not only innovative but also equitable and sustainable.

Sub-Saharan Africa is often seen as a global leader in fintech adoption, primarily due to the widespread success of mobile money services like Kenya's M-Pesa. Kouladoum et al. (2022) find strong positive correlations between digital access indicators and financial inclusion across 43 African nations. Kenya's liberal financial policies, higher mobile penetration, and stronger literacy rates explain its superior performance compared to countries like Ethiopia Bekele.

Asia shows mixed patterns. While East Asia exhibits high levels of financial inclusion, South and Southeast Asia have seen rapid fintech expansion amid large unbanked populations. India's Jan Dhan Yojana program combined with digital ID infrastructure demonstrates the effectiveness of state-led fintech inclusion (Pradhan & Sharma 2022). However, urbanization and income growth can also inhibit traditional inclusion, pushing countries to accelerate digital pathways Song et al. (2025). Regional spillover effects are also evident, with innovations in one country influencing adoption in others.

MENA countries generally lag behind global benchmarks in financial inclusion. Elouaourti and Ibourk (2024) attribute this to gender-based exclusions, limited infrastructure, and regulatory rigidity. Nevertheless, some Gulf nations are making progress in fintech-led inclusion. Mohamed and Otake (2025) highlight the role of Islamic fintech in expanding access, especially when paired with strong internet penetration and inclusive regulatory frameworks.

Latin America features moderate inclusion levels but suffers from high inequality. According to Adel (2024), digital literacy facilitates fintech adoption in this region, leading to innovations like correspondent banking in Brazil and digital wallets in Mexico. Yet macroeconomic instability and regulatory uncertainty pose ongoing challenges. In summary, regional context significantly influences how fintech affects financial inclusion. Strategies that succeed in one location may fail elsewhere without appropriate contextualization. The following section will explore how these regional insights inform broader policy and implementation considerations.

5. Discussion

The review of recent literature reveals a dynamic and multifaceted understanding of digital financial inclusion across various regions and contexts. Many studies highlight the critical role of digital literacy, infrastructure, and technological adoption—such as mobile banking, blockchain, and biometric systems—in expanding financial access. For instance, Adel (2024) and Carè et al. (2025) emphasize that blockchain and digital finance maturity significantly influence inclusion, while Okello et al. (2024) and Dianda et al. (2025) underscore the effectiveness of mobile money and biometric tools, particularly in rural areas.

However, several challenges persist. Literacy barriers, regulatory gaps, and trust issues frequently emerge as obstacles to effective digital financial service (DFS) adoption, as discussed by Ediagbonya and Tioluwani (2023), Ha et al. (2025), and di Prisco and Strangio (2021). Cultural factors, such as individualism and uncertainty avoidance, and socio-economic conditions including education, income, and phone ownership Dagnachew and Mawugatie (2022) and Anyangwe et al. (2022) also play significant roles in determining the level of financial inclusion.

Youth, women, and rural populations often face specific inclusion challenges, though targeted strategies show promise. Studies such as those by Bekele (2023) and Elouaourti and Ibourk (2024) highlight disparities between countries like Kenya and Ethiopia, largely due to policy openness and literacy levels. Meanwhile, Setiawan et

al. (2024) and Raheem et al. (2024) demonstrate that user sentiment, trust, and contextual digital design are essential for improving adoption among women.

In terms of impact, digital finance contributes not only to increased financial access but also to improved business efficiency, SME performance, and farmer welfare (Liu & Walheer, 2022; Johri et al., 2024). Nevertheless, researchers such as Mohd Daud et al. (2024) and Rani et al. (2025) caution that these benefits often depend on usage levels and may be accompanied by unintended consequences like increased carbon emissions—unless mitigated by green innovation.

This review analysis identifies important distinctions as well as recurring themes in research on fintech's potential to increase financial inclusion in developing countries. A substantial body of research confirms that fintech adoption has a positive relationship with improvements in financial inclusion. This pattern holds across various contexts both cross-country macroeconomic analyses and micro-level household or individual studies consistently report expanded financial access through digital financial services. These conclusions reinforce earlier systematic reviews that identify fintech as a pivotal driver in achieving universal financial inclusion (Mohamed & Otake, 2025; Li et al., 2025).

However, deeper analysis reveals that fintech's impact is not realized in isolation but shaped by contextual factors and enabling conditions. One important theme is the notion of conditional effectiveness: the idea that fintech only yields economic benefits after certain thresholds of adoption and digital maturity are achieved. According to Mohd Daud et al. (2024), financial inclusion significantly boosts economic growth only once it surpasses a certain threshold, a development made possible through broad technological adoption. Similarly, Adel (2024) reports that digital literacy can have a positive effect in some regions but a negative effect in others, depending on the level of digital inequality. These findings underscore the principle that “one-size-fits-all” policy solutions are ineffective; instead, fintech strategies must be tailored to each region's technological readiness and user characteristics.

Another line of discussion concerns moderating and mediating variables. Several studies explicitly test how these factors influence the link between fintech, inclusion, and development outcomes. For example, Suhrab et al. (2024) include technological innovation and infrastructure as moderating variables in their analysis of financial inclusion's impact on income inequality. Their findings show that well-developed infrastructure enhances fintech's equalizing effect. In a similar vein, Okello et al. (2024) discover that in rural Uganda, the association between fintech and financial inclusion is moderated by digital literacy. According to Song et al. (2025), in spatial models of financial inclusion, regulatory quality and financial literacy act as both moderators and mediators. Collectively, these findings reinforce the idea that fintech requires supporting elements of education, infrastructure, and regulatory frameworks in order to translate into tangible social and economic benefits.

Apparent contradictions across studies also warrant discussion. For instance, Adel (2024) reports that digital literacy negatively affects inclusion in Asia and Africa despite the common assumption that literacy should facilitate adoption. In contrast, in Latin America, where digital literacy is more evenly distributed, the effect is consistently positive. In another example, Hussain and Rasheed (2023) focus on different outcomes such as institutional risk and find that fintech reduces default rates among microfinance institutions, offering a complementary perspective to user-level. Meanwhile, Rani et al. (2025) connect fintech and financial inclusion to environmental impacts, broadening the conversation to include aspects of sustainable development. Together, these diverse perspectives and research approaches deepen our insight into the multifaceted relationship between fintech and inclusive growth.

6. Conclusion

This systematic review confirms that financial technology (fintech) is pivotal in advancing financial inclusion across developing nations. Innovations like mobile banking, e-money, and other digital innovations have effectively extended financial services to unbanked communities, reducing costs, and improved accessibility. Higher account ownership and formal financial services usage among low-income individuals, women, and other marginalized groups that have historically been excluded by traditional banking systems are clear indicators of fintech's beneficial effects. These gains in financial inclusion have contributed to more inclusive economic growth and reduced income inequality, though with varying intensity across regions.

Nevertheless, the study emphasizes that fintech's ability to drive financial inclusion is not guaranteed. Structural challenges including inadequate digital literacy, poor infrastructure, and weak regulatory systems can obstruct the full realization of its benefits. Therefore, collective efforts are required from governments, regulators, and industry stakeholders to overcome these challenges. The policy implications outlined in this paper from infrastructure investments and mass education campaigns to innovation-enabling, yet consumer-protection regulations and multi-stakeholder collaboration are all aimed at building an ecosystem in which financial technology can thrive and be equitably accessed by all segments of society.

Ultimately, fintech-driven financial inclusion goes beyond simply offering access to financial services; it is an integral component of the broader sustainable development agenda. Enhanced financial inclusion opens up economic opportunities, strengthens household resilience, and empowers communities toward improved well-being. Advanced tools such as AI and blockchain continue to evolve, the landscape of financial services will become increasingly diverse. These innovations must be designed with inclusion in mind to ensure their benefits reach the poorest and most vulnerable, not just those already well served.

This study offers a research-based foundation along with practical recommendations to help advance efforts in this area. It is hoped that policymakers and development stakeholders in emerging markets will draw insights from these findings to inform strategies aimed at accelerating inclusive finance. At the same time, the academic community is encouraged to pursue further high-quality research to fill the remaining knowledge gaps. With greater synergy between scientific inquiry, policy action, and technological innovation, the ambition of achieving universal financial inclusion may well be within reach in the coming decade moving us closer to a more equitable and financially empowered global society.

References

- Adel, N. (2024). The Impact of Digital Literacy and Technology Adoption on Financial Inclusion: Evidence from Emerging Economies in Africa, Asia, and Latin America. *Heliyon*, 10(24), 1111–1116.
- Akanfe, O., Bhatt, P., & Lawong, D. A. (2025). Technology Advancements Shaping the Financial Inclusion Landscape: Present Interventions, Emergence of Artificial Intelligence and Future Directions. *Information Systems Frontiers*, 9(3), 2324–1116.
- Anyangwe, T., Vanroose, A., & Fanta, A. (2022). Determinants of financial inclusion: does culture matter? *Cogent Economics and Finance*, 10(1), 98–107.
- Bekele, W. D. (2023). Determinants of Financial Inclusion: A Comparative Study of Kenya and Ethiopia. *Journal of African Business*, 24(2), 301–319.
- Berguiga, I., & Adair, P. (2025). Determinants of youth financial inclusion in MENA countries: account holding versus the use of digital services. *Journal of Financial Reporting and Accounting*, 23(2), 550–574.

- Carè, R., Boitan, I. A., Stoian, A. M., & Fatima, R. (2024). Exploring the landscape of financial inclusion through the lens of financial technologies: A review. *Finance Research Letters*, *1*(4), 78-84.
- Dagnachew, T. G., & Mawugatie, T. W. (2022). The analysis of financial inclusion and its determinants in the rural area of south Wollo zone, Amhara Region, Ethiopia. *Cogent Economics and Finance*, *10*(1), 32-42.
- di Prisco, D., & Strangio, D. (2021). Technology and financial inclusion: a case study to evaluate potential and limitations of Blockchain in emerging countries. *Technology Analysis and Strategic Management*, *1*(4), 1-14.
- Dianda, P., Thiombiano, N., & Okey, M. K. N. (2025). Electronic money accessibility and financial inclusion in WAEMU countries: does increased access to electronic money lead to greater financial inclusion? *Cogent Economics and Finance*, *13*(1), 1-20.
- Ediagbonya, V., & Tioluwani, C. (2023). The role of fintech in driving financial inclusion in developing and emerging markets: issues, challenges and prospects. *Technological Sustainability*, *2*(1), 100-119.
- Elouaourti, Z., & Ibourk, A. (2024). Financial Technologies for All MENA citizens: Tackling barriers and promoting inclusion. *Regional Science Policy and Practice*, *16*(6), 100-112.
- Ezzahid, E., & Elouaourti, Z. (2021). Financial inclusion, mobile banking, informal finance and financial exclusion: micro-level evidence from Morocco. *International Journal of Social Economics*, *48*(7), 1060-1086.
- Ha, D., Le, P., & Nguyen, D. K. (2025). Financial inclusion and fintech: a state-of-the-art systematic literature review. *Financial Innovation*, *11*(1), 35-46.
- Hussain, S., & Rasheed, A. (2023). Financial inclusion based on financial technology and risky behaviour of micro-finance institutes: evidence from South Asian micro-finance banks. *Digital Policy, Regulation and Governance*, *25*(5), 480-489.
- Jha, S., & Dangwal, R. C. (2024). Fintech services and financial inclusion: a systematic literature review of developing nations. *Journal of Science and Technology Policy Management*, *3*(6), 12-23.
- Johri, A., Asif, M., Tarkar, P., Khan, W., Rahisha, & Wasiq, M. (2024). Digital financial inclusion in micro enterprises: understanding the determinants and impact on ease of doing business from World Bank survey. *Humanities and Social Sciences Communications*, *11*(1), 1-10.
- Kouladoun, J. C., Wirajing, M. A. K., & Nchofoung, T. N. (2022). Digital technologies and financial inclusion in Sub-Saharan Africa. *Telecommunications Policy*, *46*(9), 102-121.
- Kuosuwan, B., Risman, A., Dudukalov, E., & Kozlova, E. (2024). Digital banking and environmental impact: how Fintech supports carbon footprint reduction. *BIO Web of Conferences*, *3*(5), 145-15.
- Li, F., Chandio, A. A., Zang, D., & Liu, H. (2025). Financial Inclusion, Digital Technology and Farmers' Well-Being Nexus: Evidence from Rural of Xizang, China. *Review of Development Economics*, *3*(5), 243-253.
- Liu, F., & Walheer, B. (2022). Financial inclusion, financial technology, and economic development: a composite index approach. *Empirical Economics*, *63*(3), 1457-1487.
- Menza, M., Jerene, W., & Oumer, M. (2024). The effect of financial technology on financial inclusion in Ethiopia during the digital economy era. *Cogent Social Sciences*, *10*(1), 98-113.
- Mhlanga, D. (2024). The role of big data in financial technology toward financial inclusion. *Frontiers in big Data*, *7*(5), 118-124.
- Mohamed, H. A., & Otake, T. (2025). The role of Islamic FinTech in digital financial inclusion and sustainable development post covid-19: cross-country analysis. *International Journal of Islamic and Middle Eastern Finance and Management*, *18*(3), 649-671.
- Mohd Daud, S. N., Ahmad, A. H., & Trinugroho, I. (2024). Financial inclusion, digital technology, and economic growth: Further evidence. *Research in International Business and Finance*, *70*(4), 123-134.
- Mpofu, F. Y., & Mhlanga, D. (2022). Digital Financial Inclusion, Digital Financial Services Tax and Financial Inclusion in the Fourth Industrial Revolution Era in Africa. *Economies*, *10*(8).
- Nagaaba, N., Batamuriza, R., Basuta, J., & Owomugisha, M. (2025). Conceptualizing digital finance as a precursor for financial inclusion and financial service usage in Uganda. *Cogent Business and Management*, *12*(1), 65-78.

- Nguyen, T. A. N., & Luong, T. T. H. (2023). The Determinants of Financial Inclusion in Vietnam: A Demand-Side Approach. *SAGE Open*, 13(4), 1–12.
- Okello Candiya Bongomin, G., Akol Malinga, C., Manzi Amani, A., & Balinda, R. (2025). Recalibrating the scope of financial inclusion through financial technologies in the digital age: the role of digital literacy as a moderator in rural Uganda. *Information Technology & People*, 38(3), 1178–1207.
- Ozili, P. K. (2023). CBDC, Fintech and cryptocurrency for financial inclusion and financial stability. *Digital Policy, Regulation and Governance*, 25(1), 40–57.
- Pandey, A., Kiran, R., & Sharma, R. K. (2023). Investigating the Determinants of Financial Inclusion in BRICS Economies: Panel Data Analysis Using Fixed-Effect and Cross-Section Random Effect. *Sustainability (Switzerland)*, 15(2), 123–132.
- Pradhan, K. C., & Sharma, R. (2022). Assessing the spatiotemporal financial inclusion and its determinants: a sub-national analysis of India. In *Asia-Pacific Journal of Regional Science* (Vol. 6, Issue 2). Springer Nature Singapore.
- Raheem, S., Addo, A., Shaffakat, S., & Lunberry, D. (2024). Designing for financial inclusion in developing countries: Digital financial service for low-income women in Ghana. *Information Society*, 1(2), 1–19.
- Rani, T., Wang, F., Rehman, S. A. U., & Amjad, M. A. (2025). Shaping sustainable futures in BRICS-T economies: The role of digitalization with moderating effects of green technology innovation and financial inclusion. *Technology in Society*, 82(12), 342–354.
- Setiawan, B., Phan, T. D., Medina, J., Wieriks, M., Nathan, R. J., & Fekete-Farkas, M. (2024). Quest for financial inclusion via digital financial services (Fintech) during COVID-19 pandemic: case study of women in Indonesia. *Journal of Financial Services Marketing*, 29(2), 459–473.
- Song, X., Qin, X., Wang, W., & Li, R. Y. M. (2025). Financial Inclusion, Technologies, and Worldwide Economic Development: A Spatial Durbin Model Approach. *The Journal of Finance and Data Science*, 6(7), 45–56.
- Suhrab, M., Chen, P., & Ullah, A. (2024). Digital financial inclusion and income inequality nexus: can technology innovation and infrastructure development help in achieving sustainable development goals? *Technology in Society*, 76(4), 102–112.

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Data Disclosure Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.



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