



Digital Economy and Financial Inclusion: The Role of Fintech in Reducing Credit Access Gaps in Rural Areas

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ABSTRACT

The growth of the digital economy has created various innovations in the financial sector that have the potential to improve financial inclusion, especially for people who have faced limited access to formal banking services. One rapidly growing innovation is financial technology (fintech), which offers digital-based financial services with faster, more flexible, and more affordable processes compared to conventional financial institutions. However, credit access gaps still remain a major challenge in rural areas due to limited financial infrastructure, low financial literacy, and high transaction costs. This study aims to analyze the role of fintech in reducing the credit access gap in rural areas and its contribution to improving financial inclusion in the digital economy era. The method used is a systematic literature review by examining various scientific articles, international institution reports, and relevant academic publications on digital economy, fintech, financial inclusion, and rural credit access. The review results show that fintech plays a significant role in expanding financing access for rural communities through digital loan services, electronic payments, mobile banking, and the use of alternative data in creditworthiness assessments. The presence of fintech can lower geographical and administrative barriers that have long limited people's access to formal funding sources. In addition, fintech also encourages increased participation of micro, small, and medium enterprises (MSMEs) in the formal financial system, contributing to local economic growth

INTRODUCTION

Digital transformation has become one of the most influential phenomena in the development of the global economy over the past decade (Ardianto, 2024; Rahayu, 2023). The technological revolution, marked by the rapid development of the internet, artificial intelligence, big data, and mobile communication technology, has changed the way people interact, work, produce, and conduct economic transactions. These changes not only affect the industrial and trade sectors but also fundamentally alter the structure and mechanisms of the financial system. Various economic activities that were previously carried out conventionally have now shifted to digital platforms that offer greater efficiency, speed, transparency, and ease of access (Amory, 2025; Abdillah, 2025). As a result, digital transformation has become one of the main drivers of modern economic growth while also creating new opportunities to improve community welfare through technology use. Advances in information and communication technology have changed many aspects of people's lives, including how individuals and businesses access financial services. While financial services in the past heavily relied on the presence of physical bank branches, nowadays various services can be accessed through digital devices such as smartphones, tablets, and computers connected to the internet. People can make payments, transfer funds, save, invest, and even apply for loans without having to go to the bank in person. This change has made the financial system more efficient while also expanding service access to groups that were previously hard for formal financial institutions to reach. Digitalizing financial services also encourages the creation of new business models that are more flexible and responsive to users' needs.

In that context, the concept of the digital economy has developed as an economic system that uses digital technology as the main foundation for creating economic value. The digital economy isn't just about electronic transactions or online trade; it also involves integrating digital technology into the entire chain of economic activities, from production, distribution, and marketing to consumption. Using digital technology allows companies to improve operational efficiency, reduce transaction costs, speed up information flow, and expand market access without being limited by geographic boundaries. The digital economy also plays a role in creating new economic opportunities through product and service innovations that can meet the ever-growing needs of society. The digital economy is increasingly seen as a strategic tool to drive sustainable and inclusive economic growth. The growth of the digital economy isn't just happening in developed countries with established tech infrastructure, but it's also spreading more and more in developing countries. Increased internet penetration, lower tech access costs, and high smartphone usage have sped up the adoption of digital technology across different layers of society. In many developing countries, digital technology has even become a way to overcome various limitations that have long hindered economic development, such as low access to information, limited physical infrastructure, and poor reach of public services. This situation shows that the digital economy has great potential to be

a catalyst for development that can speed up the integration of communities into modern economic activities.

The rise of internet penetration and mobile device usage has created a favorable environment for the growth of various digital financial service innovations (Wulandari, 2025; Lela, 2023). Easy access to technology allows financial technology (fintech) companies to offer services that are faster, easier, and more affordable compared to conventional financial services. These innovations include digital payment systems, e-wallets, app-based loan services, digital investments, and various other financial platforms designed to meet the needs of an increasingly dynamic society. The presence of digital financial services is gradually changing the way people interact with the financial system and expanding access to various formal financial products. This situation opens up huge opportunities for digital financial service innovations to reach groups of people who previously had difficulty accessing formal financial services. People living in remote areas, with low incomes, or who don't have relationships with banking institutions now have a better chance to get involved in the formal financial system through digital technology. By using the internet and mobile devices, financial services can be delivered without needing big investments in physical infrastructure. Digital transformation not only helps with economic efficiency, but it can also be an important tool to boost financial inclusion, reduce gaps in access to financial services, and strengthen more evenly distributed economic development across different areas.

The gap in credit access between urban and rural areas has become an important issue in inclusive economic development. Limited access to credit can hinder the growth of productive businesses, reduce investment opportunities, and slow down income growth for rural communities. In the long run, this situation can widen economic disparities between regions and reinforce the cycle of structural poverty. There is a need for innovations that can overcome these various barriers so that rural communities can gain easier and more sustainable access to financing. The emergence of financial technology (fintech) brings new hope in overcoming various financial access challenges that rural communities have long faced. Fintech refers to the use of digital technology to provide financial services that are more efficient, faster, and easily accessible (Prihatni, 2025; Rustan, 2025; Putri, 2024). Various fintech services like peer-to-peer lending, digital payments, mobile banking, crowdfunding, and digital wallets have grown rapidly and offer alternatives for people who are not yet served by traditional banking systems. Through digital platforms, fintech can reach users in locations far from financial service centers with relatively lower operational costs. The advantage of fintech isn't just in its ability to expand access to financial services, but also in innovating the credit assessment process. While traditional financial institutions usually rely on formal credit history and asset collateral, fintech uses alternative data like digital transaction history, mobile phone activity, and payment behavior to evaluate a borrower's creditworthiness. This approach allows individuals and businesses who were previously considered ineligible for loans to get greater access to credit. In this way, fintech has the

potential to be an important tool in boosting financial inclusion and reducing the credit access gap in rural areas.

Various previous studies show that fintech has a positive impact on improving access to financial services and empowering local economies (Afjal, 2023; Adelaja, 2024; Shah, 2026). Some research finds that using digital lending platforms can increase financing access for SMEs that have no connection with formal financial institutions. Other studies show that digital payment services can boost people's participation in the formal financial system and expand economic opportunities in remote areas. The development of financial technology is also linked to increased transaction efficiency and reduced financial service costs. That said, previous research still shows mixed results regarding the effectiveness of fintech in reducing credit access gaps in rural areas. Some studies suggest that fintech can significantly expand access to financing, while other research finds that the benefits of fintech are still concentrated among people with internet access, higher education levels, and adequate digital literacy (Morgan, 2021). This situation shows that the existence of fintech does not automatically result in evenly distributed financial inclusion across all community groups. Most previous research has focused more on the impact of fintech on financial inclusion in general without specifically analyzing the mechanisms through which fintech reduces the gap in credit access between urban and rural areas. Many studies treat financial inclusion as an aggregate variable, so they haven't provided an in-depth understanding of the factors that determine fintech's success in reaching rural communities. In fact, the social, economic, and geographical characteristics of rural areas are very different from those of urban areas, so a more specific approach is needed. Previous research has also tended to study fintech from a technology or fintech company performance perspective, while studies that integrate digital economy, financial inclusion, and rural credit access gaps are still relatively limited. These limitations have led to a lack of comprehensive understanding of how digital economic transformation creates an ecosystem that allows fintech to serve as a means to narrow financing gaps. Therefore, there is still a need to conduct studies that can connect these three concepts within a single, integrated analytical framework.

Based on a review of the literature, there are several research gaps that form the basis for this study. First, most previous studies focused on the direct relationship between fintech and financial inclusion without specifically examining its impact on credit access gaps in rural areas. Second, existing research is still dominated by a partial approach that only highlights technological or financial aspects, so it hasn't been able to fully explain the connection between digital economy development, fintech innovation, and rural communities' access to financing. Third, previous studies show inconsistent findings about the effectiveness of fintech in improving credit access for underserved groups, so a deeper literature synthesis is needed to identify the factors that influence both the success and the limitations of fintech in promoting rural financial inclusion. The novelty of this study lies in the effort to integrate perspectives from digital economy, fintech, and financial inclusion to explain the

mechanisms for reducing credit access gaps in rural areas. Unlike previous studies that generally only assessed the impact of fintech on financial inclusion in general, this study specifically highlights the role of fintech as a bridge between digital economic transformation and the expansion of credit access for rural communities. In addition, this study develops an analysis that not only identifies the benefits of fintech but also evaluates supporting and inhibiting factors such as digital literacy, technological infrastructure, regulations, and the socio-economic characteristics of rural communities. Therefore, this study is expected to provide a more comprehensive conceptual framework for understanding fintech's contribution to reducing credit access gaps and improving sustainable financial inclusion in the digital economy era. Based on this background, this study aims to analyze the role of fintech in reducing the gap in credit access in rural areas, identify the factors affecting the effectiveness of fintech implementation in supporting financial inclusion, and build a conceptual synthesis regarding the relationship between the digital economy, fintech, and financing access for rural communities. The results of this study are expected to serve as a reference for the government, regulators, fintech industry players, and financial institutions in formulating policies that support the creation of a more inclusive and equitable financial system.

LITERATURE REVIEW

One of the main goals of sustainable economic development is to create an inclusive financial system (Pellu, 2024; Maulana, 2024; Imtinan, 2024). Financial inclusion refers to a situation where all layers of society can easily, safely, and affordably access and use formal financial services. Access to financial services plays an important role in improving people's welfare because it allows individuals to have savings, credit, insurance, and various other financial instruments that can support productive economic activities. Many countries still face challenges in achieving widespread financial inclusion, especially in rural areas that often have limited infrastructure, low density of financial institutions, and minimal access to information and technology. Rural areas make a significant contribution to the national economy, particularly through agriculture, local trade, and micro, small, and medium enterprises (MSMEs) (Purba, 2025; Yolanda, 2024; Syata, 2025). Even so, rural communities often face obstacles in getting access to credit from formal financial institutions. Complicated administrative requirements, lack of asset collateral, high transaction costs, and the long distance from bank branches are factors that keep a lot of rural people outside the formal financial system. As a result, many businesses and households in rural areas rely on informal sources of funding, which tend to be more expensive and offer less protection.

METHODOLOGY

This study uses a Systematic Literature Review (SLR) approach to analyze the role of financial technology (fintech) in reducing credit access gaps and improving financial inclusion in rural areas in the context of digital economy development. The SLR method was chosen because it allows researchers to systematically identify, evaluate, and synthesize previous research findings, resulting in a comprehensive understanding of the relationship between the digital economy, fintech, financial inclusion, and rural community credit access. This approach also helps reduce subjective bias in literature selection because the search and selection process is carried out based on predetermined criteria.

The research process starts with formulating research questions that serve as the basis of the study, namely: How does the development of the digital economy affect the expansion of financial inclusion in rural areas; How does fintech play a role in reducing the credit access gap for rural communities; and what factors support or hinder the effectiveness of fintech in improving financing access in rural areas. These questions are formulated based on the phenomenon of increasing use of digital financial services as well as the continuing credit access disparities between urban and rural areas found in various previous studies.

Data was collected by searching the literature in various reputable international scientific databases, such as Scopus, Web of Science, ScienceDirect, SpringerLink, Emerald Insight, Taylor & Francis, Wiley Online Library, and Google Scholar. The search was done using a combination of keywords like digital economy, financial inclusion, financial technology, fintech, digital lending, credit access, rural finance, rural development, financial services, and rural financial inclusion. The inclusion criteria used in this study include: Articles that discuss digital economy, fintech, financial inclusion, or rural credit access; Articles published in reputable scientific journals and have undergone peer-review; Articles published between 2015–2025 to ensure relevance to the latest developments in financial technology; Articles available in both English and Indonesian; Articles presenting empirical or conceptual findings related to the impact of fintech on access to financial services. Meanwhile, the exclusion criteria include articles that are not directly related to the research topic, duplicate articles, non-academic reports that lack sufficient scientific validity, and publications that only discuss technical aspects of technology without linking them to financial inclusion or access to credit.

In the identification stage, all articles obtained from the database were collected and checked to remove any duplicate documents. Next, they were screened based on their titles and abstracts to assess their relevance to the research objectives. Articles that passed the screening stage were then fully evaluated (full-text review) to ensure that the research content was relevant to the study focus. Only articles that met all the inclusion criteria were included in the final analysis stage. The data obtained from the selected articles were then extracted using an analysis sheet that includes information about the author, year of publication, research location, research methods, variables used, and the main findings related to fintech and rural credit access. The data extraction process was

carried out systematically to make it easier to identify patterns, similarities, and differences in research results found in various country contexts and research areas. Data analysis was conducted using a thematic analysis approach. Through this Systematic Literature Review approach, the research is expected to provide a comprehensive picture of how fintech contributes to reducing credit access gaps in rural areas, identify the factors that determine the success of its implementation, and formulate policy implications that can support the development of a more inclusive financial system in the digital economy era. Thus, the research results not only offer a theoretical contribution to the development of literature on digital economy and financial inclusion, but also provide practical recommendations for the government, regulators, financial institutions, and fintech companies in expanding access to financial services for rural communities.

RESULTS AND DISCUSSION

The review of the literature shows that the growth of the digital economy has become a major factor driving the transformation of financial systems in various countries, including efforts to expand financial inclusion in rural areas (Danladi, 2023; Mookerjee, 2025). Various studies analyzed indicate that internet penetration, smartphone use, and the development of the digital ecosystem have created new opportunities for people who previously had difficulty accessing formal financial services. This transformation shifts the financial services paradigm from being based on physical offices to digital platform services that can be accessed anytime and anywhere. In rural areas, the growth of the digital economy acts as a foundation that allows people to access various financial services without having to rely on the presence of bank branches or conventional financial institutions, which are often limited in number. Literature reviews also show that fintech has become one of the most effective tools for expanding financial inclusion in rural areas (Hasan, 2023). Unlike traditional financial institutions that require physical infrastructure and complex administrative procedures, fintech offers services that are simpler, faster, and more accessible. Various digital platforms allow people to open accounts, make payments, save money, and even apply for loans just through a smartphone (Moro, 2023). This convenience significantly reduces geographical barriers, which have long been one of the reasons for the low level of financial inclusion in rural areas. Therefore, fintech not only functions as a technological innovation but also serves as a means to improve people's access to formal financial services.

One of the main findings from various studies is the ability of fintech to reduce the credit access gap that rural communities have long faced (Salleh, 2024). Before fintech grew, many individuals and micro-entrepreneurs in rural areas struggled to get loans because they lacked adequate collateral, a formal credit history, or the administrative documents required by banks. The arrival of digital lending platforms provides a more inclusive financing option by using technology to simplify the application and disbursement process (Adewale, 2022). As a result, groups in society that were previously considered unbanked or underbanked now have greater opportunities to access financing that can be

used for productive activities or consumer needs. Another finding that consistently appears in the literature is the use of alternative data as an important innovation in fintech credit scoring systems. Traditional financial institutions generally rely on credit history, financial statements, and assets as the basis for assessing creditworthiness. This approach often doesn't work for rural communities that don't have a formal financial track record. Fintech solves this problem by using digital transaction data, mobile phone usage patterns, bill payment activities, and even users' financial behaviors as additional sources of information to evaluate credit risk. This innovation allows more individuals and small business owners to get access to financing that was previously hard for them to obtain through conventional financial systems.

The study also shows that fintech has a significant contribution to the development of micro, small, and medium enterprises (MSMEs) in rural areas (Moreira, 2022; Agboola, 2023). Many studies find that limited capital is one of the main obstacles faced by MSMEs in increasing production capacity, expanding markets, and growing their businesses. Through digital loan services, MSME actors can access working capital faster compared to traditional financial institutions (Rahayu, 2023; Seth, 2024; Rohmi, 2026). Easier access to financing allows business owners to boost productivity, create new jobs, and strengthen the local economy. From an economic development perspective, this shows that fintech not only improves financial inclusion but also contributes to broader rural economic growth. Besides financing services, various studies indicate that digital payment systems also help strengthen financial inclusion in rural communities (Minarni, 2025; Wasilah, 2025). Using digital wallets and electronic payment apps lets people make transactions more efficiently without relying on cash (Zakariya, 2025). The presence of these services helps people cut transaction costs, boost payment security, and expand participation in digital economic activities. In many developing countries, digital payments even serve as a gateway for rural communities to get to know and make use of other formal financial services like digital savings, microinsurance, and app-based loans. Literature shows that the positive impact of fintech on financial inclusion isn't always felt evenly. Some studies found that the benefits of fintech are mostly enjoyed by people with good internet access, higher education levels, and digital technology skills (Aqualdo, 2023). On the other hand, community groups with limited digital literacy often struggle to make the most of fintech services. This shows that having technology alone isn't enough to ensure broad financial inclusion. Human resources still play a key role in determining the success of fintech implementation in rural areas.

Financial literacy and digital literacy have come up as the most frequently mentioned factors in various studies for determining the success of using fintech. People who understand basic financial concepts and can use digital technology tend to find it easier to take advantage of various app-based financial services. On the other hand, low literacy levels can increase the risk of using services incorrectly, inability to manage loans, and vulnerability to digital scams. Various studies highlight the importance of educational programs integrated with fintech service development so that the benefits of technology can be more widely felt by rural communities (Srivastava, 2025). Other findings show that the quality of

digital infrastructure has a huge impact on how effective fintech is at reducing gaps in credit access (Li, 2025). Areas with stable internet networks and high smartphone penetration tend to show better fintech adoption rates compared to regions still facing technological infrastructure limitations. In many developing countries, the digital infrastructure gap is still a major challenge that slows down the expansion of digital financial services to remote areas. So, the success of fintech doesn't just depend on the tech innovations it offers, but also on the readiness of the digital environment to support its use.

Regulation is also an important factor that affects the development of fintech and its impact on financial inclusion. Literature shows that clear and adaptive regulations can boost public trust in fintech services while creating a healthy innovation environment (Iyelolu, 2024; Wijayanti, 2025). On the other hand, weak regulations can lead to various risks like misuse of personal data, irresponsible lending practices, and rising cases of digital fraud. Many studies recommend finding a balance between consumer protection and support for innovation so that fintech can grow sustainably. Literature review also reveals that collaboration between fintech and traditional financial institutions produces more effective results than approaches that operate separately. In many cases, fintech acts as a complement that helps banks reach segments of society that were previously hard to serve. This collaboration allows for the integration of the speed and flexibility of digital technology with the funding capacity and risk management experience held by formal financial institutions. This partnership model has proven capable of expanding the reach of financial services while also improving the overall efficiency of the financial system. Research shows that fintech has changed the traditional approach to providing financial services. While financial inclusion used to rely more on expanding bank branch networks and building physical infrastructure, digital technology now enables broader access to services through internet-based platforms. This change shows that digitalization has become a strategic factor in speeding up the achievement of financial inclusion goals, especially for groups that have so far been outside the reach of the formal financial system (Tay, 2022; Umeaduma, 2023). Overall, the literature review results show that fintech plays a very important role in reducing the gap in credit access in rural areas by providing more accessible, flexible, and efficient financial services. Fintech can overcome various traditional barriers like geographic distance, limited collateral, and the lack of formal credit history that have long restricted rural communities' access to financing. The effectiveness of fintech is heavily influenced by the level of digital literacy, the quality of technology infrastructure, regulatory readiness, and collaboration with various stakeholders. Developing fintech as a tool to boost financial inclusion needs to be supported by comprehensive policies so that the benefits of the digital economy can be felt evenly by everyone, especially those living in rural areas.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of a systematic literature review, it can be concluded that the growth of the digital economy has created significant opportunities to boost financial inclusion through the use of financial technology (fintech). The presence of fintech can overcome various obstacles that have long limited rural communities' access to formal financial services, especially in getting credit. Through digital lending services, electronic payments, mobile banking, and the use of alternative data for creditworthiness assessment, fintech has successfully expanded financial services to groups that were previously unbanked or underbanked. In this way, fintech plays a strategic role in narrowing the credit access gap between urban and rural areas. Research also shows that fintech makes a real contribution to empowering rural communities, especially by improving access to financing for micro, small, and medium enterprises (MSMEs). Easier access to capital through digital platforms boosts business productivity, opens up investment opportunities, and supports local economic growth. Besides that, digital financial services allow rural communities to be more integrated into the formal financial system, strengthening the overall stability and inclusiveness of the financial sector.

Nevertheless, the effectiveness of fintech in reducing gaps in credit access isn't just determined by the availability of technology, but also influenced by various supporting factors. Financial and digital literacy among the community, the quality of internet infrastructure, ownership of digital devices, and an adequate regulatory framework are important factors that determine how successful fintech implementation is in rural areas. Without the support of these factors, the benefits of fintech may not be evenly distributed and could even create new forms of digital inequality among different groups in society. This study emphasizes that developing an inclusive digital economy ecosystem requires strong collaboration between the government, regulators, financial institutions, fintech companies, digital infrastructure providers, and educational institutions. Efforts to improve digital literacy, expand internet networks in remote areas, strengthen consumer protection, and create regulations that adapt to technological innovation are important steps to maximize fintech's contribution to supporting financial inclusion. With the right policy support, fintech not only serves as a financial technology innovation but also as a development tool capable of reducing credit access gaps and promoting more balanced economic growth in rural areas. Theoretically, this study enriches the literature on the relationship between the digital economy, fintech, and financial inclusion by showing that fintech acts as a connecting mechanism bridging digital transformation with the expansion of financing access for rural communities. Practically, the research findings imply that future fintech development strategies need to focus not just on technological innovation but also on enhancing user capacity and equalizing digital access. Therefore, fintech has great potential to become a key pillar in creating a more inclusive, sustainable financial system and in reducing gaps in credit access in the digital economy era.

FURTHER STUDY

This study still has limitations, so further research on the topic 'Digital Economy And Financial Inclusion: The Role Of Fintech In Reducing Credit Access Gaps In Rural Areas' is needed to improve this study and add insights for both readers and writers.

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