

A Study on FinTech and Financial Inclusion: Empowering Underserved Populations Through Digital Finance

OPEN ACCESS

Volume: 12

Special Issue: 1

Month: February

Year: 2025

P-ISSN: 2321-788X

E-ISSN: 2582-0397

Received: 22.12.2024

Accepted: 17.01.2025

Published: 28.02.2025

Citation:

Ashvitha KP, and Ruthuvandan. "A Study on FinTech and Financial Inclusion: Empowering Underserved Populations Through Digital Finance." *Shanlax International Journal of Arts, Science and Humanities*, vol. 12, no. S1, 2025, pp. 120-127

DOI:

<https://doi.org/10.34293/sijash.v12iS1-Feb.9602>

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Abstract

The emergence of financial technology (FinTech) has transformed the financial services sector, facilitating enhanced financial inclusion for marginalized groups. Digital financial services, such as mobile banking, digital wallets, and microfinance platforms, have granted access to banking solutions for millions of individuals who are unbanked or underbanked. This research investigates the influence of FinTech on financial inclusion, assessing its effects on economic empowerment, poverty reduction, and sustainable financial development. The results suggest that although FinTech has closed numerous financial gaps, challenges like digital literacy, cybersecurity threats, and regulatory obstacles continue to pose significant issues. Furthermore, the research emphasizes the necessity for strong policies to guarantee fair access to digital financial services while promoting innovation and safeguarding consumers.

Keywords: Financial Inclusion, FinTech, Digital Banking, Microfinance, Economic Empowerment

Introduction

The rise of financial technology (FinTech) has revolutionized the financial services industry, promoting greater financial inclusion for underserved populations. Digital financial services, including mobile banking, digital wallets, and microfinance platforms, have provided banking solutions to millions of individuals who lack access to traditional banking or are inadequately served by it. This study examines the impact of FinTech on financial inclusion, evaluating its implications for economic empowerment, poverty alleviation, and sustainable financial growth. The findings indicate that while FinTech has bridged many financial divides, challenges such as digital literacy, cybersecurity risks, and regulatory hurdles remain significant concerns. Moreover, the study highlights the importance of robust policies to ensure equitable access to digital financial services, while fostering innovation and protecting consumers.

Review of Literature

Kandpal and Mehrotra (2019) investigate the influence of fintech and digital financial services on financial inclusion in India. Their research indicates that although government initiatives like Jan Dhan Yojana, Digital India, and Aadhaar-linked banking have significantly improved access to bank accounts, the actual utilization of digital financial services remains limited. The authors pinpoint various obstacles to financial inclusion, such as low financial literacy, insufficient digital infrastructure, and a lack of access to formal credit. They stress that fintech is vital in addressing these issues by offering digital payment solutions, mobile banking, and alternative lending platforms. Innovations driven by fintech have particularly aided micro, small, and medium enterprises (MSMEs) by enhancing access to credit through digital lending solutions. Nevertheless, the study also highlights challenges that impede fintech growth, including low internet penetration, limited banking access in rural regions, inadequate funding for fintech startups, and concerns regarding cybersecurity. The authors contend that boosting financial literacy, providing regulatory support, and investing in digital infrastructure are essential to fully realize fintech's potential in promoting financial inclusion. Their findings imply that collaboration among fintech companies, traditional banks, and policymakers is crucial for overcoming these challenges and fostering a more inclusive financial system. The study adds to the existing literature by underscoring the necessity for technological and policy-driven solutions to improve financial access for underserved populations. (Authors: Vinay Kandpal & Rajat Mehrotra Year of Publication: 2019)

Asif et al. (2023) investigate the impact of fintech and digital financial services on enhancing financial inclusion in India. The study highlights that innovations in fintech, including mobile banking and digital payment systems, have significantly improved financial accessibility, particularly for the underbanked segments of the middle class. By employing regression and correlation analysis with data sourced from the Reserve Bank of India, the authors pinpoint trust, usability, and social influence as critical factors affecting the adoption of fintech solutions. Nevertheless, despite the encouraging prospects of fintech, challenges such as financial illiteracy, security concerns, and reluctance to embrace new technologies hinder broader acceptance. The research advocates for increased government support, regulatory improvements, and heightened consumer confidence to fully leverage the advantages of fintech in promoting financial inclusion. The findings suggest that fintech possesses the potential to drive economic growth by lowering costs, improving accessibility, and extending the reach of digital financial services to rural and underserved populations. (Authors: Mohammad Asif, Mohd Naved Khan, Sadhana Tiwari, Showkat K. Wani, and Firoz Alam Year of Publication: 2023)

Tay et al. (2022) examine the importance of digital financial inclusion in promoting sustainable economic development, particularly in developing countries. Their findings suggest that while the COVID-19 pandemic has accelerated the uptake of digital financial services, notable inequalities persist between rural and urban areas, as well as among various gender and income demographics. The research highlights several key barriers to achieving financial inclusion, including insufficient digital infrastructure, complex banking processes, and a lack of financial literacy. The authors contend that digital financial inclusion aligns with the United Nations' Sustainable Development Goals (SDGs), as it aids in poverty reduction, improves economic opportunities, and expands access to essential financial services. They advocate for governments and financial institutions to simplify banking procedures, enhance financial education, and invest in digital infrastructure to fully harness the benefits of fintech-driven financial inclusion. (Authors: Lee-Ying Tay, Hen-Toong Tai, Gek-Siang Tan Year of Publication: 2022)

Ediagbonya and Tioluwani (2022) examine the influence of fintech on enhancing financial inclusion in developing and emerging markets, particularly in Nigeria. They emphasize that fintech

innovations, such as mobile banking, digital payment systems, and online lending services, have the potential to mitigate financial inequalities, especially among unbanked populations. Nevertheless, despite these technological advancements, obstacles to financial inclusion remain, arising from issues like low literacy levels, insufficient infrastructure, unreliable network services, high banking costs, and concerns over data privacy. The authors highlight the critical role of government intervention, regulatory reforms, and investments in financial literacy and digital infrastructure to boost the adoption of fintech and promote financial inclusion. Their study underscores the need for collaboration among fintech firms, financial institutions, and policymakers to create a financial ecosystem that encourages economic development. (Authors: Victor Ediagbonya & Comfort Tioluwani Year of Publication: 2022)

Gabor and Brooks (2017) investigate the importance of digital financial inclusion within the framework of international development, emphasizing the growing involvement of fintech companies, philanthropic organizations, and government agencies in improving financial accessibility.

They assert that digital technologies enable the formation of financial ecosystems that analyze and leverage the digital footprints left by marginalized groups. The study highlights the use of behavioral economics and predictive algorithms in classifying consumers and influencing their financial behaviors.

While advancements in fintech have expanded financial access, the research raises alarms about the potential risks associated with financial surveillance, digital profiling, and the commercialization of user data. The authors contend that the prevailing approach to financial inclusion often prioritizes commercial interests over genuine financial empowerment and call for regulatory actions that align innovation with the safeguarding of consumer rights. (Authors: Daniela Gabor & Sally Brooks Year of Publication: 2017)

Rajuroy et al. (2025) examine the intersection of digital finance, financial inclusion, and green entrepreneurship in marginalized communities. The study highlights the importance of mobile banking, advancements in fintech, and blockchain technology in enhancing financial accessibility, which in turn fosters environmentally sustainable business practices. The authors identify key challenges to financial inclusion, including insufficient banking infrastructure, high transaction fees, low levels of financial literacy, and stringent lending requirements. They argue that digital finance facilitates microcredit, peer-to-peer lending, green crowdfunding, and impact investing, thereby empowering entrepreneurs to engage in renewable energy projects, sustainable agricultural methods, and circular economy initiatives. The research features case studies of successful sustainability projects enabled by fintech, such as M-KOPA in Kenya (solar energy financing), CropIn in India (digital agriculture), and Plastic Bank (blockchain-based recycling incentives). The authors recommend the establishment of public-private partnerships, regulatory frameworks, and financial literacy programs to improve the efficacy of digital finance in promoting sustainability and inclusive economic growth. (Authors: Adam Rajuroy, Warren Liang, Mr. Stephen, Mr. Emmanuel, Big Wayz Year of Publication: 2025)

Tok and Heng (2022) examine the effects of fintech on both financial inclusion and exclusion by analyzing Global Findex data in conjunction with emerging fintech indicators.

Their study demonstrates that fintech shows a significantly stronger positive correlation with digital financial inclusion compared to traditional banking methods.

Utilizing empirical models, the authors evaluate the effectiveness of fintech in addressing three major financial divides: gender, socioeconomic status (rich-poor), and access in rural regions.

The results indicate that fintech plays a role in diminishing the gaps between the wealthy and the impoverished, as well as enhancing access for rural communities.

Nevertheless, it does not significantly reduce the gender gap, implying that fintech alone is insufficient to address the financial disparities experienced by men and women.

The authors recommend the implementation of targeted policy measures in conjunction with fintech developments to address gender-specific issues, such as digital literacy, existing social norms, and economic participation. (Authors: Yoke Wang Tok & Dyna Heng Year of Publication: 2022)

Darnida et al. (2024) explore how financial technology (fintech) enhances financial access by evaluating the impact of financial literacy, regulatory frameworks, infrastructure, and adaptation on financial inclusion. Utilizing a quantitative regression model, the study indicates that financial literacy significantly positively influences financial access ($p = 0.005$), while the factors associated with regulation, infrastructure, and adaptation do not show a notable effect. The results highlight the critical role of fintech in expanding access to financial services through mobile banking, digital payment systems, and microfinance platforms, particularly benefiting underserved communities and micro, small, and medium enterprises (MSMEs). However, challenges such as regulatory hurdles, digital literacy gaps, and trust issues hinder the broader adoption of fintech. The authors recommend increased government support, enhancements in regulatory frameworks, and initiatives focused on financial education to fully harness fintech's potential in promoting inclusive economic growth and ensuring financial stability. (Authors: Yondi Caturadina Darnida, Andri Haryono, Arifia Nurriqli Year of Publication: 2024)

Lagna and Ravishankar (2021) examine the influence of fintech on enhancing financial inclusion, especially in developing countries. Their study emphasizes the ability of fintech innovations—such as digital payments, mobile banking, and peer-to-peer lending—to improve access to financial services for unbanked and marginalized populations. The authors note that the domain of Information Systems (IS) research has not sufficiently addressed the importance of fintech in promoting financial inclusion, despite its growing relevance in financial markets. They propose a framework to guide future IS research, focusing on five essential areas: business strategies, digital artifacts, business environment, microfoundations of fintech, and developmental impacts. While fintech presents significant opportunities for reducing poverty and encouraging economic growth, the research also cautions about potential risks, including financial surveillance, digital exclusion, and issues related to data privacy. The authors advocate for responsible IS research and policymaking to ensure that fintech-driven financial inclusion is ethical, sustainable, and effective. (Authors: Andrea Lagna & M. N. Ravishankar Year of Publication: 2021)

Arner et al. (2020) examine the influence of financial technology (FinTech) on improving financial inclusion and its relationship with the United Nations Sustainable Development Goals (SDGs). The study suggests that FinTech has the capacity to transform financial systems and economies by enhancing access to banking services, reducing poverty, and promoting financial stability. The authors propose a four-pillar framework for digital financial transformation, which includes the creation of digital identity and electronic Know Your Customer (e-KYC) processes to simplify account setup, the establishment of open and interoperable electronic payment systems to boost financial connectivity, the growth of electronic government services and payments, and the formulation of digital financial markets to improve access to credit and investment opportunities. While these pillars could significantly enhance financial inclusion, the research also expresses concerns about data privacy, financial surveillance, and regulatory challenges. The authors emphasize the importance of balancing innovation with consumer protection to achieve sustainable financial development. Additionally, they point out the vital role of public-private partnerships, regulatory frameworks, and financial literacy initiatives in ensuring that fintech-driven financial inclusion effectively benefits marginalized communities. (Authors: Douglas W. Arner, Ross P. Buckley, Dirk A. Zetsche, and Robin Veidt Year of Publication: 2020)

Research Methodology

This research utilizes a mixed-methods strategy, integrating both qualitative and quantitative research methodologies. Primary data is gathered through surveys administered to individuals in underrepresented communities, FinTech startups, and financial institutions. Secondary data is sourced from reports released by the World Bank, IMF, and leaders in the FinTech industry.

Research Objectives

1. To analyze the impact of FinTech on financial inclusion.
2. To examine the challenges faced by underserved populations in accessing digital financial services.
3. To evaluate policy recommendations for promoting secure and inclusive digital finance.

Type of Research

An empirical research approach is adopted, using both primary and secondary data sources. Surveys are conducted with a sample size of 200 individuals across different socio-economic backgrounds, assessing their engagement with digital financial services.

Results and Discussion

1. Demographic Analysis		
Category	Details	Interpretation
Age Distribution	18-24 years: 84 respondents (75%)	Younger demographic indicates a strong FinTech adoption potential.
	25-34 years: 24 respondents (21.4%)	
	45-54 years: 4 respondents (3.6%)	
Gender Distribution	Male: 48 (42.8%)	Balanced representation for gender-based financial behaviour analysis.
	Female: 64 (57.1%)	
Employment Status	Students: 68 (60.7%)	Majority are students, indicating a need for youth- focused financial services.
	Employed: 32 (28.5%)	
	Self-employed: 8 (7.1%)	
	Unemployed: 4 (3.5%)	
Bank Account Ownership	100% bank account access (112/112).	No financial exclusion in terms of bank account access.
Smartphone Access	100% smartphone access.	Strong potential for FinTech app-based engagement.
Main Source of Income	Salary/Wages: 42.8%	Indicates a mix of financial independence levels.
	Business Income: 21.4%	
	Government Assistance: 3.5%	
	Other sources: 16 respondents.	

2. Descriptive Statistics					
Variable	Mean	Std Dev	Min	Max	Interpretation
Financial Security (Scale 1-5)	3.71	0.296	1	5	Respondents generally agree that FinTech contributes to financial security.

FinTech Transaction Frequency (Scale 1-5)	3.5	1.2	1	5	Users conduct FinTech transactions between “Sometimes” and “Often”.
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3. ANOVA Test (Age & Transaction Frequency)

Hypothesis	Description
H ₀ (Null Hypothesis)	There is no significant difference in financial transaction frequency across different age groups.
H ₁ (Alternative Hypothesis)	There is a significant difference in financial transaction frequency between different age groups.

4. T-Test (Gender & Financial Security Perception)

Hypothesis	Description
H ₀ (Null Hypothesis)	There is no significant difference between males and females in how they perceive financial security through FinTech.
H ₁ (Alternative Hypothesis)	There is a significant difference between genders.

T-Test Results	Value	Interpretation
T-Statistic	-1.77	There is no significant gender-based difference in financial security perception.
P-Value	0.152 (p > 0.05)	Not statistically significant → Men and women perceive financial security similarly.

5. Regression Analysis (Transaction Frequency & Financial Security)

Hypothesis	Description
H ₀ (Null Hypothesis)	There is no relationship between FinTech transaction frequency and financial security.
H ₁ (Alternative Hypothesis)	There is a significant relationship between transaction frequency and financial security.

Financial Security = $\beta_0 + \beta_1(\text{FinTech Transaction Frequency}) + \epsilon$
 $\text{Financial Security} = \beta_0 + \beta_1(\text{FinTech Transaction Frequency}) + \epsilon$

Regression Output	Value Interpretation
Intercept (β_0)	3.711 Baseline financial security score.
FinTech Transaction Frequency (β_1)	0.0668 No significant impact on financial security (p > 0.05).
P-Value	0.379 Not statistically significant → Transaction frequency does not strongly predict financial security.
Model Performance	Value Interpretation
R-Squared	0.007 Only 0.7% of financial security variation is explained by transaction frequency.
F-Statistic	0.779 Model is not statistically significant.

Overall Insights & Recommendations

Findings	Insights	Recommendations
High smartphone & bank account access	Strong FinTech potential among youth.	Develop youth-oriented FinTech solutions (budgeting tools, student loans, savings plans).
No significant gender differences in financial security perception	Men and women equally trust FinTech.	No need for gender-specific marketing; focus on user needs instead.
Transaction frequency does not impact financial security significantly	Financial security depends on other factors (income, trust, literacy).	Expand FinTech offerings beyond transactions (investment tools, financial coaching, savings incentives).
ANOVA test was inconclusive	Data limitations due to missing responses in some age groups.	Future studies should ensure a balanced age group representation.
R ² value (0.7%) is low	Transaction frequency barely explains financial security variance.	Focus on financial education, trust-building, and diversified FinTech services.
Majority of respondents are students (60.7%)	Students may lack independent financial experience.	Introduce financial literacy programs in schools and universities.

Research Gap

Although FinTech has enhanced financial inclusion, there remain deficiencies in comprehending how policies can be customized to tackle digital fraud, cybersecurity threats, and the affordability of digital services.

Furthermore, the contribution of AI in creating personalized financial solutions is still not thoroughly examined.

Limitations

- This research primarily concentrates on developing nations; therefore, the findings may not be applicable on a global scale.
- The data is based on self-reporting, which may introduce biases.
- Regulatory factors vary by region, affecting the rates of adoption.

Suggestions

- Governments ought to adopt policies aimed at improving digital literacy and cybersecurity in financial transactions.
- Cooperation between FinTech companies and conventional banks can bolster financial ecosystems.
- Regulatory bodies should create explicit guidelines to guarantee consumer protection while fostering innovation.
- The development of internet infrastructure in rural regions is essential for promoting digital financial inclusion.

Conclusion

The financial technology sector has revolutionized financial services, facilitating enhanced financial inclusion for marginalized groups. Although considerable advancements have been achieved, obstacles persist in guaranteeing security, accessibility, and adherence to regulations. This research highlights the necessity for specific policies and partnerships within the industry to further close the financial gap. Subsequent studies should concentrate on the impact of artificial intelligence and blockchain technology in promoting inclusive financial systems.

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