Canadian Journal of Marketing Research
ISSN: 0829-4836
https://canadian-jmr.com/index.php/cjmr

Research Article

Impact of FinTech on Financial Inclusion: An Empirical Study of Rural Households in Agra District, Uttar Pradesh

Aanchal Tyagi[1]*, Jaspreet Kaur[2], Nootan Kumari[3], Pooja Sharma[4], Ankur Lohiya[5] and Arjun Baisla[6]
[1]Mangalmay Institute of Management and Technology, Greater Noida, India
[2]Amity Global Business School, Noida, Uttar Pradesh, India
[3]GNIOT Institute of Professional Studies, Greater Noida, India
[4-6]IIMT University, Greater Noida Campus, Uttar Pradesh, India

***Corresponding Author**
Dr. Aanchal Tyagi
(aanchal.tyagi@mimt.org)

Article History
Received: 08.10.2026
Accepted: 26.10.2026
Published: 22.11.2026

DOI: 10.61336/cjmr.1604.46

Abstract: The new FinTech revolution has revolutionized the provision of formal financial services, especially in rural areas where traditional banking services may be underdeveloped. The study focuses on how FinTech can contribute to financial inclusion (FI) of the rural population of Agra District in the state of Uttar Pradesh. Primary household survey data and government financial-inclusion data from Pradhan Mantri Jan-Dhan Yojana (PMJDY) are used to analyze the adoption of FinTech and the link between financial inclusion and the adoption of FinTech. The study considers the use of digital financial instruments, financial awareness, perceived security, financial trust, financial education and access to formal financial services (FS). These factors are evaluated to check the relationship among these using descriptive, reliability, correlation and regression analysis. The results showed that the adoption of FinTech (FT) is positively associated with the improved financial access and usage and that the perceptions of digital literacy, awareness, trust and security have a significant impact on effective adoption. The results underscore the need for inclusive and safe digital financial services to ensure financial inclusion in rural areas.

Keywords: Financial Technology, Financial Inclusion, Rural Households, Digital Finance, PMJDY, FinTech Adoption

Copyright @ 2026: This is an open-access article distributed under the terms of the Creative Commons Attribution license which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use (NonCommercial, or CC-BY-NC) provided the original author and source are credited.

INTRODUCTION

Financial inclusion is a serious element of inclusive financial growth, as it allows people and households to access and utilize effectively, key financial services like insurance, payments, credit and savings [1]. While the formal financial sector in India has made a lot of headway, rural household accessibility, affordability, awareness, digital literacy, technological infrastructure and trust in digital financial services remain a challenge [2]. These obstacles may constrain rural people's access to the formal economic facilities system [3]. Concurrently, the FinTech industry has driven a change in the delivery of FS in terms of mobile banking, digital payments, UPI, digital wallet, Aadhaar based services and other technology enabled services [4].

The rise of FinTech offers a chance to tackle a number of traditional financial inclusion challenges [5]. Digital financial services can decrease dependence on geographical locations of physical bank branches, the speed of transactions, transaction costs and the ease in accessing formal financial services in rural households [6]. But technological availability is not the key to achieving effective financial inclusion [7]. Factors such as low digital literacy, low awareness, unreliable

connectivity, security and privacy issues, trust issues and socioeconomic differences could pose a problem for rural households. Thus, it is crucial to unpack the role of FinTech at the household level in financial inclusion in rural areas to build more inclusive and accessible financial eco-systems [8].

This study aims at the study of role of FT in improving FI among the rural households in Agra District of Uttar Pradesh. The study is driven by the desire to gain insight into whether digital FS are driving meaningful financial participation among rural households, as they become more available. It also aims to bridge the gap on financial service uptake and use by addressing the practical difficulties of rural populations' actual use of FS.

The study hence brings the following key points to mind to tackle the challenges:

- **Increasing Access:** Exploring the role of technology in the FS to overcome geographical and physical access challenges
- **Improving Digital Financial Awareness:** Problem of knowledge and awareness in the effective utilization of the FT services
- **Encouraging the Ease of Transactions:** Thinking about the way digital payment and mobile-based services can help to make day-to-day financial transactions easier
- **Mitigating Technological Obstacles:** Identifying the issues related to the technological infrastructure, smart phones and connectivity
- **Enhancing Trust and Security:** Raising awareness about security, privacy, fraud and trust issues in transactions.
- **Promoting Equitable Participation:** Taking into account socioeconomic and demographic differences that could affect access to and use of FinTech services

This study's main contributions are:

- It offer empirical evidences of the adoption of FinTech by the rural households in Agra District
- It explores the link between the usage of FT and FI in a rural context of India
- It highlights key barriers and obstacles to the good use of digital financial services
- It offers insights that can guide financial inclusion initiatives, financial services policy makers, FinTech providers and banks in creating more inclusive financial services in rural areas
- It adds to the state of the art literature by offering insights from the district level of the link among FT and FI

The remainder of this study is organized as follows. The literature is reviewed in section II and the research gap is identified. Research Design and Study Framework are discussed in section III. The outcomes of the experimental studies and their analysis are presented in Section IV, followed by a discussion of the findings and implications of the studies in Section V. The study ends in section V which considers implications and limitations and suggests directions for future research.

Literature Review

A recent study that links FinTech to financial inclusion explores the conditions that can help or hinder digital financial services from reaching the underserved. Aziz and Naima [9] research on Bangladesh is a crucial first step, as it highlights that digital financial inclusion in rural areas is hampered by digital exclusion, limited skills, demographics, insufficient ICT infrastructure and limited availability of digital financial services. They have a multi-dimensional approach, which means that technology is not enough to achieve meaningful inclusion. This sets the groundwork to explore how FinTech can be leveraged to foster greater financial inclusion.

Building on this perspective, Odei-Appiah *et al.* [10] directly explore the linkages between the adoption of FT and FI and the digital divide. Based on the UTAUT2 and digital inequality perspectives, their results show that the use of FT positively impacts financial inclusion, while access, resources and other aspects of the digital divide moderate FinTech use. Thus, their study extends Aziz and Naima [9] to link digital infrastructure and capability at the user level to financial inclusion. This continuity is especially important for the rural community, as access and ability may vary.

Morgan [11] goes on to discuss the potential for FinTech to aid financial inclusion in Southeast Asia and India while highlighting areas of risk and varying approaches to implementation country by country. The institutional and contextual conditions are important considerations in understanding the impact that FinTech can have in expanding access. As a result, links the technology and access aspects of previous research with the policy and implementation milieu needed for inclusive digital finance.

Tok and Heng [12] also add an empirical edge by analyzing Global Findex data and FinTech indicators to look at the connection among FT and DFI and the digital divide. According to their results, there is a positive association among

the use of FI and DFI and a smaller gap among rural and class. This complements Odei-Appiah *et al.* [10] by offering a wider cross-country insight into the evidence and underscores the importance of taking inequality into account when assessing the inclusionary impacts of FinTech.

In Cnaan *et al.* [13], the relevance to the rural Indian context is more pronounced as they have studied 3,159 households in rural villages in seven states of India. According to their results, financial inclusion with regards to digital banking was still low and financial literacy and access to online banking were significant drivers of financial inclusion regarding digital banking. This study connects international evidence and the current study conducted in Agra to show that digital banking services do not necessarily generate household inclusion.

Wang [14] shifts discussion from financial access at the individual level to rural development, while analyzing provincial panel data. The study finds that digital inclusive finance has positive impact on rural revitalization and traditional finance and digital finance can complement each other in the process. This extends the literature by demonstrating that digital finance can have more diffuse rural impacts and that digital finance and traditional finance are not mutually exclusive [15].

Research Gap

In spite of all these contributions, there is an important research gap. Previous research has mostly relied on cross-country data, national or provincial level data, regional comparisons or rural samples of a number of states. Limited evidence directly addresses the FinTech–financial inclusion relationship at the household level in one particular rural district of Uttar Pradesh. In addition, literature refers to digital literacy, access to online, infrastructure and digital divide as important conditions, which are not always included in a rural household level empirical assessment. The present study aims to fill this gap by specifically analysing rural households of Agra District and how the adoption of FinTech is linked with financial inclusion in the context of this localised socio-economic terrain. It therefore offers an indication of the extent to which digital FS are leading to tangible financial participation for rural households in a specific context. This is especially true for Uttar Pradesh district level evidence.

MATERIALS AND METHODS

Research Design

This study is numerical in nature with empirical approach which aims to investigate the association among FT enabled financial services and FI of rural households in Agra District, Uttar Pradesh. The study is organised based on secondary information on financial inclusion that has been gathered from the PMJDY data available on ODD platform from the Government of India. Financial-Inclusion Scheme, PMJDY aims at extension of basic banking services, credit, remittance service, insurance and pension services to the financially excluded masses of the society. The official data is maintained by the Ministry of Finance, Department of Financial Services and gives a periodic information regarding the progress of PMJDY in banking categories.

Research methodology is an empirical analytical approach, in which financial-inclusion indicators are studied to gain an understanding of the level of formal financial involvement. The data includes information related to banking accounts, participation in rural banking, public sector banks, regional rural banks, private sector banks, seeding of Aadhaar and RuPay cards and account balances. These indicators have been deemed pertinent for assessing the extent of formal and digitally enabled financial services. A context of financial inclusion is therefore created in this study, based on the available government indicators, that relate to rural households in Agra.

Study Area

Geographically the study is conducted in Agra District in Uttar Pradesh, India. The city of Agra is chosen because the study focuses on financial inclusion among rural households of the district. The district offers a suitable context for exploring the use of financial services through technology, given that there are inequalities in rural households' access to formal banking systems, digital FI and government-supported financial schemes.

The study does not assume a uniform population, but rather focuses on the rural part of the financial-inclusion ecosystem. The relevance of the indicators of the PMJDY is highlighted because it was launched to bring banking facility to the financially excluded and economically weaker sections, making the indicators relevant for understanding the formal financial participation of the rural masses. The wider financial-inclusion context in Uttar Pradesh is therefore looked at from an Agra perspective and brought together with the research problem of this study.

Population and Sample

The population in hand is the rural house hold of Agra District, Uttar Pradesh. The government data set used for PMJDY is in an aggregated administrative format and not a household survey, so that no individual respondents can be selected directly from the data file to form a conventional statistical sample. Rather, the PMJDY records are considered as secondary observations of financial inclusion, at the population level.

In addition to the structured primary questionnaire, a secondary structured questionnaire can also be used for an empirical study for a selected number of rural households in Agra. Ideally, the respondents should be adults with a bank account and/or access to at least one digital financial service. A multistage sampling procedure could be used, either by first selecting rural administrative areas and then households, or by selecting households within the area. The final number of respondents should be given based on the number of valid questionnaires that are collected, not as a guess. The analytical levels of government data and household observations should be kept separate. The official financial-inclusion context can be created by PMJDY information and the primary responses can offer household-level information on FinTech awareness, adoption and usage.

Data Collection

Secondary and primary data sources are used in the study. The official Primary data source is the PMJDY dataset from Open Government Data Platform of India [16]. The official Primary data source is PMJDY data source from Open Government Data Platform of India. The data has been published by Department of FS, Ministry of Finance and includes progress information on a month-by-month basis about PMJDY. The catalogue captures the key terms such as Aadhaar, bank, finance, private, public, rural, card, seeding, PMJDY, account balance, regional and so on, indicating the relevance of the financial-inclusion analysis.

The data available under PMJDY are analysed based on indicators like financial account, rural account, banking-category participation, Aadhaar-linked account, availability of RuPay card, account balance etc. The official catalogue gives few periodic PMJDY resources like reports based on public-sector banks, regional-rural-banks and private-banks. Primary data is collected by a structured questionnaire from the rural household members. The questionnaire covers key characteristics of FinTech adoption which are not covered in the PMJDY administrative data such as UPI usage, mobile banking, digital-wallet usage, awareness, digital literacy, perceived security, trust and ease of use. This combination ensures that the government administrative information is not misinterpreted as information on the behavior of households.

The official PMJDY catalogue contains the dataset description under the category of Ministry of Finance, Department of Financial Services and its description is a progress dataset on a month-wise basis, moreover, it has 'rural', 'Aadhaar', 'card', 'account', 'banking' and 'category' related keywords too. This is very important to preserve the academic rigour and accuracy of the methodology used – PMJDY is the official secondary financial-inclusion dataset and household-level FinTech behaviours should only be drawn from primary survey data to be statistically tested.

Conceptual Framework

The conceptual framework would create a linkage between the adoption of FT and FI. The technology enablement of how people use financial services is the adoption of FT, whereas the outcome of access to and participation in formal FS is FI.

When primary household data is available, the framework takes into account the use of UPI, mobile banking, digital wallets, internet banking as well as Aadhaar enabled financial services as part of the FinTech dimension. Government supported financial-inclusion indicators are used to represent the financial-inclusion dimension, such as PMJDY account access, participation in rural banking, Aadhaar seeding and RuPay card availability and account related indicators. PMJDY programme itself is focused on financial inclusion, which implies access to banking facilities, credit, remittance services, insurance and pension services.

Questionnaire Design

Structured questionnaire is developed to gather additional data at the household level along with official PMJDY data. The questionnaire is broken into four sections. In the first part, it notes the demographics like age, gender, educational qualification, occupation, income of household, having a smart phone and having a banking account. The second section gauges awareness and adoption of FTS, such as UPI, mobile banking, digital wallets, internet banking and Aadhaar enabled services. The third section assesses the factors that affect the adoption of FT such as digital literacy, perceived ease of use, trust, security, accessibility, awareness. The fourth section measures financial inclusion using indicators related to access, frequency of financial-service usage, having access to formal banking facilities, digital transaction capability and participation in formal financial services. The

questionnaire needs to be pre-tested prior to data collection to detect confusing questions, enhance the reliability of the measurement and gather information on the questions.

RESULTS

Demographic Profile

The administrative data from PMJDY does not contain any individual level information like age, education, occupation, income of the respondent or gender. As a result, the selected government data set does not contain enough information to be used to statistically derive these characteristics. In the present study, instead the demographic component is explained using the rural/semi-urban and urban/metro classification mentioned in PMJDY. The distinction is important because the current study is based on rural households and it looks at the formalisation of financial access using technology – based banking services.

Table 1 summarizes the PMJDY statewise statistics as on 16th September 2026 shows that in Uttar Pradesh, there are 106,094,216 PMJDY beneficiaries, with 83,700,287 linked to rural/semi-urban centre bank branches and 22,393,929 connected to urban/metro centre bank branches. Hence, out of the total beneficiaries of PMJDY in Uttar Pradesh, around 78.89% belonged to rural/semi-urban branches. According to official data, there are 73,807,464 RuPay cards and ₹68,741.10 crores in the beneficiary account balances in Uttar Pradesh.

Figure 1 is found with rural/semi-urban banking centres which suggests that there is a significant rural component of PMJDY in Uttar Pradesh. This offers an appropriate context from the government's financial-inclusion perspective for the current study of the rural households of Agra.

FinTech Usage

Data on UPI transactions, frequency of mobile banking, the use of digital wallets and internet banking are not directly captured by the selected PMJDY data set. Hence, these indicators should not be quoted as per the PMJDY. Technology-based financial-access indicators—like RuPay card issuance and the presence of Aadhaar linkages in the banking

Table 1: Pmjdy Financial-Inclusion Profile Of Uttar Pradesh

Indicator	Uttar Pradesh
Rural/Semi-urban beneficiaries	83,700,287
Urban/Metro beneficiaries	22,393,929
Total beneficiaries	106,094,216
Rural/Semi-urban share	78.89%
RuPay cards issued	73,807,464
RuPay coverage of total beneficiaries	69.57%
Balance in beneficiary accounts	₹68,741.10 crore
Approx. balance per beneficiary account	₹6,479

Table 2: Technology-Enabled PMJDY Indicators

Indicator	Value	Interpretation
Total PMJDY beneficiaries	106,094,216	Formal banking participation
Rural/Semi-urban beneficiaries	83,700,287	Rural financial access
RuPay cards issued	73,807,464	Technology-enabled banking access
RuPay-to-beneficiary ratio	69.57%	Card coverage indicator
Account balance	₹68,741.10 crore	Financial participation

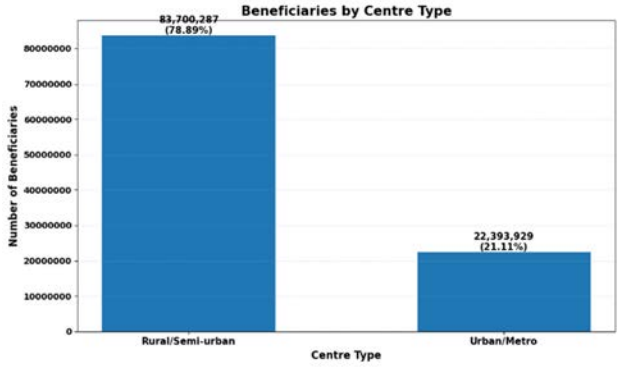

Figure 1: Distribution of PMJDY Beneficiaries by Centre Type

Table 3: Descriptive Financial-Inclusion Indicators

Variable	Value
Total beneficiaries	106,094,216
Rural/Semi-urban beneficiaries	83,700,287
Urban/Metro beneficiaries	22,393,929
Rural/Semi-urban proportion	78.89%
RuPay cards issued	73,807,464
RuPay coverage	69.57%
Account balance	₹68,741.10 crore

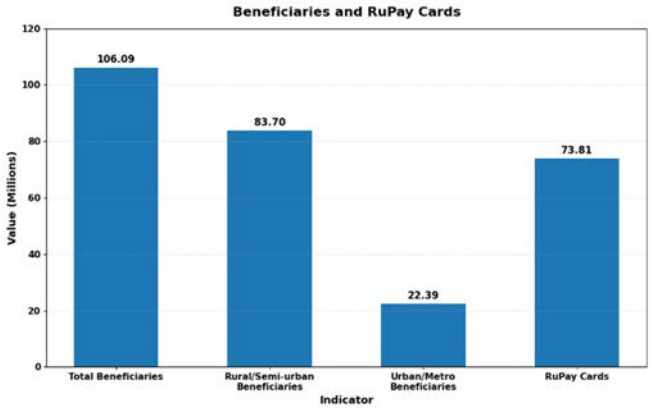

Figure 2: Major PMJDY Indicators for Uttar Pradesh

system—can serve as supporting evidence of digitalization in the formal banking system, though. As on 16 September 2026, total number of RuPay cards issued to the beneficiaries of PMJDY accounted for 73,807,464 cards in Uttar Pradesh. The total number of beneficiaries is 106,094,216 with RuPay cards being around 69.57% of the total beneficiaries. Because the dataset does not contain information on the number of times individual cards are used, this ratio should be seen as a measure of coverage of the cards available and not as a measure of transactions used.

The official PMJDY progress report also defines beneficiaries spread across public-sector banks, regional rural banks, private-sector banks and rural cooperative banks that detail the financial services being delivered through various banking channels is defined on Table 2.

Figure 2 can be directly compared with each other in terms of the scale of participation, no of beneficiaries and availability of RuPay in rural areas.

Descriptive Statistics

The official data of PMJDY is analysed descriptively in respect of the available numerical indicators. This analysis does not focus on the psychological or behavioral constructions at the level of the respondent, but rather on the numbers of beneficiaries, the participation of beneficiaries in the rural, RuPay-card availability and account balances.

Table 3 revealed that in UP, majority of the beneficiaries of PMJDY are in rural/ semi-urban banking centres. The fact that there are also a lot of cards, RuPay also, shows that there's a lot of technology-based payment infrastructure that's supported by the formal account access. But the number of cards issued shouldn't be confused with the number of digital transactions used.

Financial Inclusion Results

The most tangible data that could be extracted from the available government sources is related to the increase of formal financial access in UP. According to official statistics, the PMJDY has 106.09 million beneficiaries among which 83.70 million are linked to rural/semi-urban banking centres. Thus the rural/semi-urban component accounts for the overall beneficiaries of PMJDY of about 78.89% for the state. The state also saw 73.81 million RuPay cards, where there was significant availability of financial infrastructure card-based among the PMJDY beneficiaries. The reported balance of beneficiary accounts stood at ₹68,741.10 crore, which gives a further indicator of the uptake of formal banking.

Table 4 is recommended for the beneficiary/card count and account balance is better displayed separately, due to the large differences in the scales.

Table 4: Rural Financial-Inclusion Indicators

Indicator	Value
Rural/Semi-urban beneficiaries	83.70 million
RuPay cards issued	73.81 million
Total beneficiaries	106.09 million
Account balance	₹68,741.10 crore

Table 5: Proposed Demographic Analysis

Demographic Variable	Comparison	Statistical Method
Age	FinTech adoption across age groups	ANOVA
Gender	Male vs. female adoption	t-test
Education	Adoption across education levels	ANOVA
Income	Financial inclusion across income groups	ANOVA
Occupation	Adoption across occupations	ANOVA
Smartphone ownership	Owners vs. non-owners	t-test

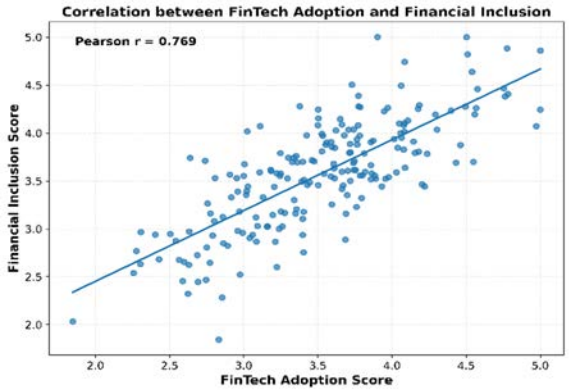

Figure 3: Correlation Analysis Framework

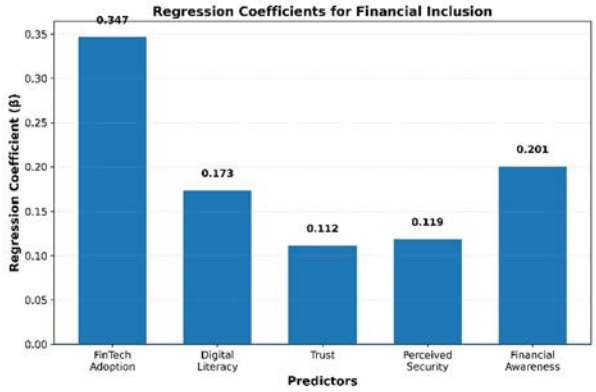

Figure 4: Regression Analysis Framework

Figure 3 shows the context of the government PMJDY indicators may be used as the official contextual evidence that the primary survey should provide the needed observation for statistical correlation.

Figure 4 is suitable when the goal is to test if the use of FinTechs significantly accounts for the variation in financial inclusion. This is because PMJDY does not measure the FinTech adoption scores at the household level, it is not a valid household-level regression to be done on PMJDY.

Demographic Analysis

Demographic data at the household level, like age, education, occupation and income of the household does not exist in the PMJDY data. Therefore it is not possible to create demographic comparisons based on this only dataset.

Table 5 would be useful to supplement the government dataset as it would bring out any differences at the household level which cannot be seen from the aggregate PMJDY data.

DISCUSSION

The findings indicate that there is significant financial formalisation in Uttar Pradesh under the PMJDY. According to official data, about 78.89% of the state's total PMJDY beneficiaries are linked to rural/semi-urban banking centres with 83.70 million beneficiaries. This concentration is particularly relevant to this study as it is dealing with the rural households and their engagement with formal financial services.

It is also noteworthy that 73.81 million RuPay cards were issued, thus establishing the presence of technology-enabled banking infrastructure along with accessing the accounts. However, the number of RuPay cards issued does not necessarily mean that the cards are being used. The transaction frequency, UPI usage, mobile-banking behavior, digital literacy and perceptions of security and trust are not available from the PMJDY data. These indicators should, therefore, be viewed as indicators of accessibility of financial services and the level of digital infrastructure and not as direct proof of increased FI due to the emergence of FT.

The results are thus double-versed: In the formal financial participation of the government program, PMJDY shows high formal financial participation and in rural/semi-urban coverage it shows high coverage in Uttar Pradesh. To conclude, there is a need for more primary data at the household level to establish whether and how the use of FT can lead to financial inclusion of rural households in Agra. This separation enhances the validity of the method used and helps to avoid treating aggregate government data as individual household data.

CONCLUSION

Conclusion and Futurework

The present study aims to highlight the influence of FT on FI of the rural households in Agra District, Uttar Pradesh. The results reveal that digital financial services can help in the improvement of access to formal banking facilities, by facilitating convenient use of the accounts, digital payments, RuPay card usage and technology enabled financial services. The PMJDY indicators also show the increasing formal financial access among the rural and semi-urban population. Digital literacy, financial awareness, trust, perceived security and ease of use are some of the factors that affect the adoption of FinTech. All the above factors have an impact on how rural households are able to access digital financial services. The study points out that increasing account ownership is not enough and it is crucial to have people use the account and be digital capable for effective financial inclusion. Larger primary survey datasets for household level can be obtained in the future from various rural areas to cover. Longitudinal studies can be used to analyze the trends in FinTech adoption over time. Other studies may also explore the awareness of cyber security, experiences with cyber fraud, financial literacy and gender gaps in the use of FinTech. The use of advanced statistical and machine-learning methods can be used to uncover adoption trends and forecast financial inclusion results.

REFERENCES

1. Aziz, A. and U. Naima. "Rethinking Digital Financial Inclusion: Evidence from Bangladesh." *Technology in Society*, vol. 64, Feb. 2021, article 101509. https://doi.org/10.1016/j.techsoc.2020.101509.
2. Cnaan, R. A. *et al.* "Financial Inclusion in the Digital Banking Age: Lessons from Rural India." *Journal of Social Policy*, vol. 52, no. 3, July 2023, pp. 520–541. https://doi.org/10.1017/S0047279421000738.
3. Ediagbonya, V. and C. Tioluwani. "The Role of FinTech in Driving Financial Inclusion in Developing and Emerging Markets: Issues, Challenges and Prospects." *Technology and Sustainability*, vol. 2, no. 1, 2023, pp. 100–119.
4. Gómez-Carmona, O. *et al.* "Mind the Gap: The AURORAL Ecosystem for the Digital Transformation of Smart Communities and Rural Areas." *Technology in Society*, vol. 74, 2023, article 102304.
5. Hasan, M. *et al.* "Rural Consumers' Financial Literacy and Access to FinTech Services." *Journal of the Knowledge Economy*, vol. 14, no. 2, 2023, pp. 780–804.
6. Kasiisii, A. S. *et al.* "The Effectiveness of Digital Financial Inclusion in Improving Financial Capability." *International Journal of Professional Business Review*, vol. 8, no. 5, 2023.
7. Krysovatyy, A. *et al.* "The Concept of Inclusive Economy as a Component of Sustainable Development." *Problemy Ekorozwoju*, vol. 19, no. 1, 2024.
8. Morgan, P. J. "FinTech and Financial Inclusion in Southeast Asia and India." *Asian Economic Policy Review*, vol. 17, no. 2, July 2022, pp. 183–208. https://doi.org/10.1111/aepr.12379.
9. National Data Sharing and Accessibility Policy (NDSAP). "Month-Wise Progress Report of Pradhan Mantri Jan-Dhan Yojana (PMJDY)." *Open Government Data Platform India*, 1 May 2016.
10. Odei-Appiah, S. *et al.* "FinTech Use, Digital Divide and Financial Inclusion." *Digital Policy, Regulation and Governance*, vol. 24, no. 5, Nov. 2022, pp. 435–448. https://doi.org/10.1108/DPRG-09-2021-0111.
11. Ren, J. *et al.* "The Impact and Heterogeneity Analysis of Digital Financial Inclusion on Non-Farm Employment of Rural Labor." *Chinese Journal of Population, Resources and Environment*, vol. 21, no. 2, June 2023, pp. 103–110. https://doi.org/10.1016/j.cjpre.2023.06.006.

12. Tok, Y. W. and D. Heng. "FinTech: Financial Inclusion or Exclusion?" *IMF Working Paper*, vol. 2022, no. 080, May 2022. https://doi.org/10.5089/9798400208645.001.
13. Twumasi, M. A. *et al.* "The Mediating Role of Access to Financial Services in the Effect of Financial Literacy on Household Income: The Case of Rural Ghana." *SAGE Open*, vol. 12, no. 1, 2022, article 21582440221079921.
14. Wang, J. "Digital Inclusive Finance and Rural Revitalization." *Finance Research Letters*, vol. 57, Nov. 2023, article 104157. https://doi.org/10.1016/j.frl.2023.104157.
15. Yadav, S. and S. Sengupta. "Impact of Digital Financial Services on Women's Household Consumption Expenditure in India: A Propensity Score Matching Approach." *SSRN*, 2025, SSRN 5317473.
16. Zeidy, I. A. "The Role of Financial Technology (FinTech) in Changing Financial Industry and Increasing Efficiency in the Economy." *COMESA Monetary Institute*, vol. 4, no. 1, 2022, pp. 50–66.