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Impact of FinTech-Enabled Transaction Volume on Financial Inclusion in India

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Abstract

This research examines how FinTech-enabled transaction volumes drive financial inclusion in India. The study uses a quantitative regression model to analyze secondary data from the Pradhan Mantri Jan Dhan Yojana and digital payment platforms. It finds a strong relationship, with an R-squared value of 0.980. This indicates that 98% of the variation in banking adoption is explained by digital transaction activity. A significant p-value of 0.000149 further confirms that transaction velocity is a reliable predictor of financial participation.

The originality of this paper lies in its focus on transaction volumes as a primary driver for inclusion rather than simple account ownership. A key limitation is the reliance on secondary data, which may not capture individual barriers like digital literacy. The study suggests that policymakers should prioritize transaction-based incentives to deepen banking engagement. These results highlight the importance of digital public infrastructure in bridging the economic gap for underserved populations. By adopting a digital-first approach, India can ensure sustainable financial growth and more equitable access to formal services for all citizens.

1. Introduction

Financial Inclusion (Fin-clusion) is now a central priority for developing countries. It aims to provide affordable financial services to all citizens. This includes underserved and unbanked populations who previously relied on informal systems (Care et al., 2024). Access to savings, credit, and insurance helps reduce poverty and supports inclusive growth (Mritunjay & Singh, 2025). In India, Fin-clusion has evolved from a policy goal into a digital revolution (Asif et al., 2023).

The Indian government accelerated Fin-clusion process in 2014. It launched the Pradhan Mantri Jan Dhan Yojana (PMJDY) to provide universal banking access (Mukherjee & Banerjee, 2023). This initiative succeeded in bringing millions of households into the formal sector. Bank account ownership in India rose to nearly 80% following this push (Asif et al., 2023). However, many of these new accounts initially saw little activity. Policymakers realized that opening an account was only the first step (Kushwaha & Malpani, 2025).

A major shift occurred with the rise of FinTech. Digital tools have turned bank accounts into active financial instruments. Technologies like the Unified Payments Interface (UPI) and mobile wallets have removed physical barriers (Chopra et al., 2025). These systems allow users to transact without visiting a bank branch. This ease of use is important for rural areas with few physical bank offices (Kushwaha & Malpani, 2025).

India’s progress is built on a framework known as the "India Stack." This includes digital identity through Aadhaar and real-time payments through UPI (Chopra et al., 2025). Aadhaar allows for quick identity

verification. This has enabled the government to send welfare payments directly to citizens (Mukherjee & Banerjee, 2023). Such transfers create a digital history for millions of people (Datta, 2023). This "digital footprint" is a key factor in financial engagement.

The impact of these technologies is measurable. Research shows that a 10% increase in digital payments (DPs) adoption can boost a country's Fin-clusion index by over 7% (Chandra et al., 2025). FinTech has also helped bridge social gaps. It has reduced the gender disparity in financial access by roughly 23% (Akomeah et al., 2025). Access to formal credit has increased by 31% for groups that were previously excluded (Kushwaha & Malpani, 2025). These statistics demonstrate that technology provides more than just convenience.

Transaction volume is a critical metric for this study. High volumes indicate that formal finance has become an integral part of daily life. UPI transaction values now represent approximately 3.4% of India's GDP (Thukral & Dagar, 2025). This activity shows that people are shifting away from cash for their daily needs. Frequent transactions also help banks assess the creditworthiness of small borrowers (Chopra et al., 2025). This provides access to loans that were once unavailable to the poor.

However, significant challenges still exist. Digital literacy remains low in many rural regions (Mukherjee & Banerjee, 2023). Concerns about cybersecurity also prevent some users from fully adopting digital tools (Jena, 2025). Additionally, the adoption of FinTech varies widely across different Indian states (Abouraia & Morsey, 2020). These gaps suggest that technology alone cannot solve every problem. Policy and education must work alongside innovation.

This study examines how FinTech-enabled transaction volumes affect Fin-clusion in India during the period January 2020 to December 2025. It investigates how the scale of DPs drives deeper financial engagement. By analyzing these trends, the research identifies how technology can sustain long-term economic growth. The goal is to understand how India can build a truly inclusive financial ecosystem for every citizen.

2. Literature Review

2.1 Studies outside India

Existing research outside India underscores the transformative role of FinTech in expanding financial access across diverse economic landscapes. These studies highlight how digital tools bridge the gap for populations that traditional banking system failed to cover.

A study of the ASEAN region examined seven countries, including Vietnam and Indonesia, over the period from 2011 to 2021 (Dao et al., 2024). The researchers used a quantitative approach by constructing an extensive database from the Global Fin-clusion records. They concluded that FinTech adoption significantly enhances Fin-clusion across the region. Age influences inclusion in an inverted U-shaped pattern, while gender is not a significant factor.

Djoufouet & Pondie (2023) analyzed the impact of FinTech across 22 Sub-Saharan African countries. The authors employed both descriptive and inferential statistics to investigate how digital adoption affects traditional Fin-clusion. The study found that a 1% increase in mobile phone ownership directly facilitates greater use of financial services. The results confirmed that FinTech services, particularly those oriented toward transactions and credit, contribute significantly to the inclusion of underserved populations.

Tiony & Yin (2024) evaluated the role of innovations like mobile money and digital banking in Kenya. This research used a descriptive methodology to analyze how these technologies have enhanced economic growth. They found that platforms like M-Pesa have made financial services more accessible and

affordable. This has allowed Kenyans to increase their formal savings and access credit more easily than from traditional banks.

Care et al. (2024) explored the effect of FinTech on credit provision between 2011 and 2018 in China. The researchers analyzed bank lending data using regression models to understand support for small and medium enterprises (SMEs). They observed that FinTech substantially boosts the supply of credit to SMEs. This suggests that digital tools can be more effective for reaching SMEs than simply increasing the number of physical bank branches.

Mashoene et al. (2025) analysed 28 emerging and developing economies for the period from 2011 to 2021. This study used a System Generalized Method of Moments model to create a new Fin-clusion index. The empirical results indicated that a 1% increase in FinTech development led to a 0.1772 unit rise in the overall Fin-clusion index. These global insights confirm that FinTech serves as a powerful driver for both financial access and usage in developing markets.

2.2 Study focused on India

Extensive research within India also highlights the role of FinTech in driving Fin-clusion. These studies focus on how digital infrastructure and payment systems bridge the gap between traditional banking and underserved populations.

A study by Kushwaha and Malpani (2025) examined the impact of FinTech on banking access across 28 Indian states. This research covered the period from 2015 to 2023. The authors employed a fixed-effects regression model and an instrumental variable approach to analyze panel data. The findings revealed that a 10% increase in DPs adoption led to a 7.2% improvement in the Fin-clusion index. The study noted that FinTech adoption reduced the gender gap in financial access by 23% and increased formal credit access by 31% among previously unbanked groups.

Mritunjay and Singh (2025) explored the relationship between DPs growth and macroeconomic dynamics. The researchers analyzed time-series data spanning from 2015-16 to 2024-25. They investigated the impact of the Digital Payment Index (DPI) and PMJDY accounts on GDP per capita using multivariate regression analysis. The study found that the expansion of PMJDY accounts significantly contributes to GDP growth. However, the DPI showed a delayed or indirect influence on GDP, despite the exponential rise in digital adoption.

Mukherjee and Banerjee (2023) analyzed role of UPI in socio-economic development. This study covered the 2020 to 2022 period, encompassing the COVID and post-COVID eras. The researchers used secondary data analysis and cluster analysis to evaluate UPI transaction trends. Their findings highlighted that the surge in UPI volume has established India as a global leader in real-time payments. The research emphasized that UPI has become a major tool for Fin-clusion in the modern economic system.

Sadarsopewale and Kadam (2026) investigated the digital revolution's effect on financial sector transformation. Their research covered a five-year period from 2020-21 to 2024-25. The study used a descriptive and analytical approach, relying on secondary data from the RBI and NPCI. The study found that digital platforms like UPI, IMPS, and mobile wallets have enhanced financial accessibility. It concluded that FinTech innovations are essential for improving the efficiency of the Indian financial sector.

Asif et al. (2023) examined the impact of digital financial services on inclusion metrics. This study utilized regression and correlation analysis based on secondary data from the Reserve Bank of India. The findings indicated that FinTech businesses have successfully reached underbanked segments, helping push bank

account ownership to nearly 80%. The study affirmed that a stable operating environment is necessary for FinTech to continue expanding services to the underbanked.

Overall, literature suggests that FinTech plays a complementary role in Fin-clusion.

2.3 Research Gap

Most existing studies focus on how many people open bank accounts or start using DPs. However, researchers have not paid enough attention to how the amount of daily transactions affects long-term financial habits. While UPI is popular, few studies show whether frequent use leads people to save more or access credit. This research fills that gap by looking at how high transaction volumes actually drive deeper Fin-clusion. This study examines whether fintech-enabled payment environment attracts underserved population to fully participate in the financial system.

2.4 Research Objectives

This study aims to achieve the following specific objectives:

1. To examine the rapid growth of FinTech-enabled payment systems, focusing on platforms like UPI and mobile wallets.
2. To analyze longitudinal trends in Fin-clusion using account data from the PMJDY initiative.
3. To evaluate the empirical relationship between digital transaction volumes and Fin-clusion metrics through regression analysis.
4. To provide evidence-based policy recommendations that help scale digital financial services for India's underserved populations.

3. Research Methodology

This study adopts an empirical and analytical approach to examine the relationship between FinTech transaction volume and Fin-clusion in India. The secondary data have been collected from two sources: the Reserve Bank of India's Database on Indian Economy and the official PMJDY portal. The dependent variable is the total number of PMJDY beneficiaries, representing Fin-clusion. The independent variable is the total volume of FinTech-enabled payments, measured in lakh transactions consisting of the following:

- Aadhaar Enabled Payment System (AePS) Fund Transfers.
- Aadhaar Payment Bridge System (APBS)
- UPI
- BHIM Aadhaar Pay
- Bharat QR
- UPI QR

The study employs a linear regression model specified as

$PMJDY_t = \beta_0 + \beta_1 (\text{FinTech Volume}_t) + \varepsilon_t$,

where $PMJDY_t$ denotes beneficiaries at time t, FinTech Volume_t represents transaction volume, β_0 is the intercept, β_1 represents the coefficient, and ε_t is the error term. The model is estimated using the Ordinary Least Squares (OLS) technique to determine the statistical significance and direction of the relationship between digital transaction activity and Fin-clusion outcomes.

3.1 Research Hypothesis

The study analyzes the relationship between DPs velocity and banking reach by testing the following hypothesis:

Null Hypothesis (H_0): FinTech transaction volume has no significant impact on Fin-clusion ($\beta_1=0$).

Alternative Hypothesis (H_1): FinTech transaction volume has a significant impact on Fin-clusion ($\beta_1 \neq 0$)

4. Results and Analysis

4.1 Growth of FinTech Payments

Table 1: Fintech-enabled payment volume year-wise (in lakh)

Year	Aadhaar Enabled Payment System (AePS) Fund Transfers	Aadhaar Payment Bridge System (APBS)	UPI	BHIM Aadhaar Pay	Bharat QR	UPI QR	Grand Total
2020	3.94	3967.89	83,161.72	44.11	111.5	2711.65	90,000.82
2021	11.31	12,598.37	3,87,331.41	201.1	491.56	13,126.67	4,13,760.41
2022	6.53	15,433.26	7,40,396.90	235.96	556.41	23,677.65	7,80,306.70
2023	3.89	23,353.43	11,76,087.51	174.09	678.24	33,418.00	12,33,715.17
2024	3.76	32,190.54	17,22,080.18	235.96	749.35	63,679.18	18,18,938.97
2025	3.43	34,655.30	22,82,818.51	227.7	770.26	82,304.47	24,00,779.67

Source: RBI Database of Indian Economy analysed by the Author

Fintech-enabled payment volume (in lakh) since the year 2020 to 2025 has been presented in table 1. The table reveals a significant surge in India's FinTech-enabled payment volumes between 2020 and 2025. The grand total grew from 90,000.82 lakh to 24,00,779.67 lakh transactions. UPI serves as the primary driver of this expansion, increasing from 83,161.72 lakh to 22,82,818.51 lakh during this period. Other platforms, such as the Aadhaar Payment Bridge System (APBS) and UPI QR, also demonstrated consistent growth. These figures illustrate a rapid shift toward digital transactions. This trend confirms that FinTech tools are becoming central to India's financial ecosystem.

4.2 Growth of Fin-clusion

Table 2: PMJDY Account year-wise

Year	"Number of Beneficiaries at rural/semiurban centre bank branches"	"Number of Beneficiaries at urban metro centre bank branches"	"Number of Total Beneficiaries"
2020	273431711	142395265	415826976
2021	296048169	147223083	443271252
2022	319697790	159506593	479204383
2023	343415369	170750961	514166330
2024	362117711	181885841	544003552
2025	448441811	124868579	573310390

Source: (https://www.pmjdy.gov.in/home) Department of Financial Services, Ministry of Finance, Government of India.

PMJDY Account operating between the year 2020 to 2025 has been presented in table 2. The provided table shows steady growth in PMJDY beneficiaries from December 2020 to December 2025. Total accounts increased significantly from 41.58 crore to 57.33 crore over this period. Rural and semi-urban branches primarily drove this expansion, reaching over 44.84 crore beneficiaries by late 2025. This trend demonstrates the scheme's success in targeting underserved populations in remote regions (Asif et al., 2023; Mritunjay & Singh, 2025). While urban enrolment also rose consistently, rural participation drives most of the growth. These figures confirm that formal banking access is expanding effectively across the country (Chandra et al., 2025; Kushwaha & Malpani, 2025).

4.3 Regression Analysis Interpretation

The regression model output has been presented in table 3. It provides several critical insights into how DPs activity drives banking adoption.

Table 3: Regression Statistics

Multiple R	0.990000105			
R Square	0.980100208			
Adjusted R Square	0.97512526			
Standard Error	94.87959486			
Observations	6			
	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	4184.202789	66.89032815	62.55318	3.91214E-07
X Variable	0.000681649	4.85646E-05	14.03592	0.000149497
Source: Author's own calculation using MS Excel				

1. Model Fit: The R-squared value of 0.980 indicates that 98% of the variation in the number of PMJDY beneficiaries is explained by the volume of FinTech-enabled transactions. This represents a very strong model fit, suggesting that digital transaction activity is a near-perfect predictor of Fin-clusion trends in the current Indian economic context.
2. Coefficient Impact: The regression analysis confirms a strong and statistically significant relationship between FinTech transaction volumes and Fin-clusion in India. The coefficient for the independent variable is 0.0006816, indicating that a 100,000 increase in digital transaction volume leads to 68 additional PMJDY accounts. This positive coefficient supports the study's hypothesis that FinTech activity serves as a primary driver for expanding banking access.
3. Statistical Significance: From a statistical standpoint, the results are highly reliable. The p-value for the FinTech volume variable is 0.000149, which is well below the standard 0.05 threshold. This signifies that the results are significant at the 1% level, meaning there is less than a 1% probability that this relationship occurred by chance. Additionally, the t-stat of 14.03 further reinforces the strength of the independent variable in predicting the dependent variable. Therefore, the null hypothesis is rejected. This demonstrates that the impact of FinTech on Fin-clusion is statistically significant.
4. Baseline Metric: The intercept value of 4184.20 represents the baseline number of beneficiaries when transaction volumes are at zero. These results indicate that as the "India Stack" and digital infrastructure mature, transaction volumes will play a key role in sustaining financial participation. Overall, the regression model strongly confirms that digital innovations drive Fin-clusion in India.

5. Discussion

The regression analysis proves a strong link between digital transaction volume and Fin-clusion in India. R-squared value of 0.980 signifies that the model explains 98% of the variation in PMJDY account growth. This high level of correlation suggests that the volume of DPs is a near-perfect predictor of banking adoption. The positive coefficient of 0.0006816 confirms that as more people use UPI and QR codes, more unbanked individuals are attracted to the formal banking system (Chandra et al., 2025; Kushwaha & Malpani, 2025).

These findings are in line with the "India Stack" framework, which uses Aadhaar and UPI to lower barriers to financial entry (Chopra et al., 2025). The results are statistically significant with a p-value of 0.000149. This evidence supports previous research suggesting that digital tools are structural drivers for economic development (Mritunjay & Singh, 2025; Mukherjee & Banerjee, 2023). The DPs ecosystem allows for rapid scalability in rural areas as they do not depend on physical branches. Increasing the velocity of digital transactions has become an important strategy for deepening Fin-clusion across the country.

6. Limitation and Future Direction

This study relies on secondary data, which may not capture individual user experiences or digital literacy levels. Future research may incorporate primary surveys to explore the specific socio-economic barriers faced by rural populations. Examining the impact of digital credit and insurance products would offer a more comprehensive view of Fin-clusion. Investigating the long-term effects of transaction velocity on individual financial stability may also be done.

7. Policy Implications

The findings suggest that policymakers should prioritize increasing transaction velocity rather than just account opening. Since 98% of the variation in PMJDY accounts is linked to FinTech-enabled volume, incentivizing UPI and QR code adoption is essential. Strengthening the "India Stack" infrastructure will also lower entry barriers for rural populations. Expanding digital literacy programs is important as it can ensure that this growth is sustainable and inclusive. By focusing on DPs usage, the government can successfully transition passive account holders into active participants in the formal economy.

8. Conclusion

This study confirms that FinTech-enabled transaction volume is a powerful driver of Fin-clusion in India. The regression analysis shows that DPs explain 98% of the growth in PMJDY account holders. These results are statistically significant and it proves that increasing transaction velocity attracts unbanked population to the banking system. The success of digital public infrastructure like UPI and Aadhaar has been instrumental in this transformation. A digital-first approach is essential for deepening formal financial participation and ensuring sustainable economic development for all segments of the society.

References

1. Abouraia, M., & Morsey, R. M. A. (2020). Analyzing the Impact of FinTech Adoption on Financial Inclusion and Economic Development: A Data-Driven Approach. Türk Bilgisayar ve Matematik Eğitimi Dergisi, 11(1), 973. https://doi.org/10.61841/turcomat.v11i1.14257
2. Akomeah, K. B., Ijiyemi, P. O., Donkor, N., Takyi, V. A. A., & Twenewaah, I. (2025). Digital Finance and Inclusive Growth in Sub-Saharan Africa: The Transformative Role of FinTech. International

Journal of Advances in Engineering and Management, 7(9), 310. https://doi.org/10.35629/5252-0709310323

3. Asif, M., Khan, M. N., Tiwari, S., Wani, S. K., & Alam, F. (2023). The Impact of Fintech and Digital Financial Services on Financial Inclusion in India. Journal of Risk and Financial Management, 16(2), 122. https://doi.org/10.3390/jrfm16020122
4. Carè, R., Boitan, I. A., Stoian, A., & Fatima, R. (2024). Exploring the landscape of financial inclusion through the lens of financial technologies: A review. Finance Research Letters, 72, 106500. https://doi.org/10.1016/j.frl.2024.106500
5. Chandra, Dr. L. K., Dr S. Ramesh, Thota, Dr. N. J. R., Dr Vijayakumar, & Ramana, D. R. R. K., Dr S. Venkata. (2025). Fintech And Financial Inclusion In India: A Data-Driven Analysis Of Digital Payments And Banking Access. Journal of Informatics Education and Research. https://doi.org/10.52783/jier.v5i3.3774
6. Chopra, K., Sidana, N., & Arora, R. (2025). Digital public infrastructure as a driver of financial inclusion in India. Discover Sustainability, 7(1). https://doi.org/10.1007/s43621-025-02507-9
7. Dao, H., Nguyen, M. C., Nguyen, K., & Şensoy, A. (2024). Unveiling financial inclusion dynamics: Fintech's resonance in Association of Southeast Asian Nations (ASEAN). International Journal of Finance & Economics, 30(2), 1348. https://doi.org/10.1002/ijfe.2963
8. Datta, D. (2023). THE FUTURE OF FINANCIAL INCLUSION THROUGH FINTECH: A CONCEPTUAL STUDY IN POST PANDEMIC INDIA. Sachetas, 2(1), 11. https://doi.org/10.55955/210002
9. Djoufouet, W. F., & Pondie, T. M. (2023). IMPACTS OF FINTECH ON FINANCIAL INCLUSION: THE CASE OF SUB-SAHARAN AFRICA. Copernican Journal of Finance & Accounting, 11(4), 69. https://doi.org/10.12775/cjfa.2022.019
10. Jena, R. K. (2025). Factors Influencing the Adoption of FinTech for the Enhancement of Financial Inclusion in Rural India Using a Mixed Methods Approach. Journal of Risk and Financial Management, 18(3), 150. https://doi.org/10.3390/jrfm18030150
11. Kushwaha, D., & Malpani, D. D. (2025). The Impact of Fintech on Financial Inclusion in India: An Empirical Analysis of Digital Payment Adoption and Banking Access. International Journal of Environmental Sciences, 11, 218. https://doi.org/10.64252/g845vb32
12. Mashoene, M. K., Tweneboah, G., & Schaling, E. (2025). FinTech and financial inclusion in emerging and developing economies: a system GMM model. Cogent Social Sciences, 11(1). https://doi.org/10.1080/23311886.2025.2491701
13. Mritunjay, M., & Singh, R. (2025). Financial Inclusion, Digital Payment Growth, and Macroeconomic Dynamics: An Empirical Study of the Indian Economy. International Journal of Research and Scientific Innovation, 12(11), 335. https://doi.org/10.51244/ijrsi.2025.12110031
14. Mukherjee, S., & Banerjee, K. (2023). Importance of UPI in Socio-Economic Development: An Empirical Study. AIMS International Journal of Management, 17(1), 27. https://doi.org/10.26573/2021.17.1.3
15. Sadarsopewale, M., & Kadam, R. N. (2026). Digital revolution and financial sector transformation: Role of FinTech and Digital Payments in India. International Journal of Applied Research, 12(2), 101. https://doi.org/10.22271/allresearch.2026.v12.i2b.13363

16. Thukral, A., & Dagar, L. (2025). India's digital public infrastructure: Analyzing UPI and Aadhaar in GDP growth and cost optimization. Journal of Emerging Investigators. https://doi.org/10.59720/25-046
17. Tiony, O. K., & Yin, Y. (2024). Financial Technology and Its Role in Promoting Financial Inclusion and Economic Growth in Kenya. American Journal of Industrial and Business Management, 14(7), 943. https://doi.org/10.4236/ajibm.2024.147049