

Assessing the role of UPI in promoting Financial Inclusion in India: Empirical Insights

Mrs.Radhika.M.S¹ & Dr.M.Shanthana Lakshmi²

¹Research Scholar, Department of Commerce, Nehru Arts and Science College, Coimbatore

²Research Guide, Department of Commerce, Nehru Arts and Science College, Coimbatore

Abstract

This study explores the impact of digital financial infrastructure on financial inclusion in India by analysing data over a five-year period (2020–2024). The research focuses on three key variables: the Financial Inclusion Index, the number of banks live on the Unified Payments Interface (UPI), and the value of UPI transactions (in crore). Using statistical tools such as correlation, regression, and ANOVA, the study examines the relationship between these variables and the level of financial inclusion. The findings reveal a strong and statistically significant relationship between the adoption of UPI by banks and the increase in digital transaction values with the improvement in financial inclusion. The Pearson correlation coefficient ($r = 0.997$) indicates a very high positive correlation between digital transaction value and the number of banks using UPI. Regression analysis shows that 96.4% of the variation in financial inclusion can be explained by the digital transaction ecosystem, with the model being significant at the 5% level ($p = 0.036$). The results highlight the transformative role of digital financial platforms like UPI in enhancing access to financial services and promoting inclusive economic growth. According to the study's findings, one of the main factors facilitating financial inclusion in India is the incorporation of digital payments with banking services.

Keywords: UPI , FII ,Financial inclusion , Digital payments

1. Introduction

Financial Inclusion refers to the process of ensuring that individuals and businesses, particularly those from disadvantaged or low-income groups, have access to affordable and appropriate financial products and services. These services typically include savings, credit, insurance, and payment systems, which are essential for economic participation and security. Financial inclusion aims to reduce poverty, improve economic growth, and empower marginalized groups by providing access to the tools needed for financial stability. **Digital Payments** have emerged as a transformative tool in addressing these challenges, facilitating access to financial services, and promoting financial inclusion. The electronic transmission of funds for products or services using a digital platform—such as mobile wallets, internet banking, QR codes, or mobile apps—is referred to as a digital payment. These systems enable fast, secure, and low-cost transactions, which help integrate people into the formal financial system. In India, the introduction of the **Unified Payments Interface (UPI)** has played a pivotal role in revolutionizing digital payments. Launched in 2016 by the National Payments Corporation of India (NPCI), UPI has allowed people across the country to make seamless transactions through smartphones, even without internet banking or credit cards. By simplifying the process of money transfer and payment, UPI has become a powerful driver of financial inclusion, especially in rural and semi-urban areas. Overall, digital payments, particularly through platforms like UPI, are key to ensuring that financial services are accessible, affordable, and efficient, leading to broader financial inclusion and empowering individuals economically.

2. Literature review

Bennu Hanifa Nur Surachman, Sumiati, and Siti Aisjah (2024) investigate the connection between financial success and digital financial inclusion. The study finds that digital financial inclusion affects financial innovation, poverty levels, stability of the financial sector, and regulatory frameworks across countries.

Salman Alfarysy, Khresna Bayu Sangka, and Desy Wulan Ayuning Gumilar (2024) studied digital financial inclusion and digital financial literacy.(SLR) method and analyzed data qualitatively. The study concludes that digital financial literacy is critical for increasing digital financial inclusion and eliminating economic and social inequities. The review utilized the Systematic Literature Review.

Oritsematosan Faith Dudu, Olakunle Babatunde Alao, and Enoch O. Alonge (2024) investigated how digital payment systems affect financial inclusion in emerging markets. The report emphasizes the promise of digital payment platforms to improve financial inclusion, but cautions that problems such as poor digital literacy, regulatory impediments, and cybersecurity threats must be addressed.

Da, Phuong Le, and Duc Khuong Nguyen (2025) examine the research on using fintech to increase financial inclusion. The study consolidates the literature on financial inclusion by contextualizing theories and viewpoints from the fintech sector, using bibliometric and content analysis techniques.

3. Scope of the study

This research aims to investigate the impact of UPI utilization on financial inclusion in India with specific attention will be given to urban and rural regions. Financial inclusion in India is an on going process that aims to integrate all sections of society into the formal financial system. This study will examine UPI as a key digital payment platform and its role in promoting financial inclusion. It will also explore the border digital ecosystem, such as mobile wallets and QR code systems that work in tandem with UPI to enhance access to financial services. The research will provide valuable insights into how digital payments systems like UPI are revolutionizing financial inclusion in India and offering a pathway toward economic equality and empowerment for all sections of the society.

4. Objectives of the study

1. To assess the impact of UPI on financial inclusion in India
2. To analyse how the implementations of digital payments like UPI transaction has contributed to increase in the financial inclusion index
3. To identify the key drivers of financial inclusion index improvements through UPI utilization

5. Research Methodology

A descriptive research study was undertaken to investigate the effects of UPI on financial inclusion, providing valuable insights into this phenomenon.

The following methodology adopted for this research

Source of data: This research was based on a review of secondary sources, such as newspapers, websites, and journals, which highlighted the positive impact of UPI on financial inclusion

Sample Size: The researchers analysed data from the past 5 years related to the financial inclusion index, the number of banks integrated with UPI, and the volume and the value of UPI transaction

Tools Used for Data Analysis: Simple correlation, regression and ANOVA test were used for this analysis

6. Data analysis and Interpretation

Table 1: The financial inclusion index is developed based on factors such as the number of banks and the business value among buyers.

Month	Financial inclusion value index	No of banks live on UPI	Value(in cr)
March 2024	64.2	661	2477221.61
March 2023	60.1	572	1978353.23
March 2022	56.4	399	1410443.01
March 2021	53.9	314	960581.66
March 2020	53.1	216	504886.44

Source: Combining FII data available in RBI and UPI data available in NPCL

The data clearly demonstrates a strong positive relationship between the growth of UPI infrastructure(in terms of both participating banks and transaction volume) and the improvement in financial inclusion in India over the five year period

Table 2: Correlation between values in cores and no of banks in upi payment

Correlations		Value(in crores)	No of banks live on UPI
Value(in crores)	Pearson Correlation	1	.997**
	Sig. (2-tailed)		.000
	N	5	5
No of banks live on UPI	Pearson Correlation	.997**	1
	Sig. (2-tailed)	.000	
	N	5	5

** . At the two-tailed 0.01 level, the correlation is significant.

The Pearson correlation analysis was conducted to examine the relationship between the number of banks live on UPI and the total transaction value (in crores) over the five-year period from 2020 to 2024. The analysis reveals a very strong positive correlation between the two variables, with a Pearson correlation coefficient of $r = 0.997$, which is statistically significant at the 0.01 level ($p = 0.000$).

This extremely high correlation indicates that as the number of banks adopting UPI increases, the total value of transactions also rises almost proportionately. In practical terms, it reflects that the expansion of UPI-enabled banking infrastructure has had a direct and substantial impact on the volume of digital transactions in the country. This strong relationship supports the assertion that digital banking initiatives like UPI play a crucial role in promoting financial inclusion through greater accessibility and usage of financial services.

Table 3: To assess the impact of digital financial activity on financial inclusion, a multiple regression analysis was conducted with the Financial Inclusion Index as the dependent variable and UPI transaction value (in crores) and number of banks live on UPI as independent variables

Model Summary

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate	Change Statistics			
						R Square Change	F Change	df1	df2
1	.982 ^a	.964	.927		1.2465	.964	26.407	2	2

a. Predictors: (Constant), Value(in crores), No of banks live on UPI

The regression model yielded a high correlation coefficient ($R = 0.982$), indicating a very strong relationship between the independent variables and the Financial Inclusion Index. The R Square value of 0.964 reveals that 96.4% of the variance in the Financial Inclusion Index is explained by the combined effect of UPI transaction value and the number of banks using UPI. The Adjusted R Square (0.927) also supports the reliability of this model after adjusting for the number of predictors.

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	82.064	2	41.032	26.407	.036 ^b
	Residual	3.108	2	1.554		
	Total	85.172	4			

a. Dependent Variable: financial inclusion index

b. Predictors: (Constant), Value(in crores), No of banks live on UPI

The ANOVA table indicates that the overall regression model is statistically significant, with an F-value of 26.407 and a significance level (p-value) of 0.036. At the 5% level, the model is significant since the p-value is less than 0.05, indicating that the predictors accurately estimate the dependent variable.

The results confirm that both the number of banks live on UPI and the value of digital transactions are significant predictors of financial inclusion. This analysis reinforces the view that the expansion of digital payment infrastructure contributes meaningfully to improving financial inclusion in India.

8. Conclusion

This study examined the relationship between digital financial infrastructure and financial inclusion in India over a five-year period (2020–2024). Using data on the Financial Inclusion Index, the number of banks live on UPI, and the value of UPI transactions (in crores), the research aimed to understand how digital advancements influence inclusive financial growth. The analysis revealed a steady increase in the Financial Inclusion Index, which corresponded with a significant rise in the number of banks participating in the UPI platform and a sharp increase in digital transaction values. Statistical techniques such as correlation, regression, and ANOVA confirmed a strong and statistically significant relationship between digital transaction activity and financial inclusion. The Pearson correlation coefficient ($r = 0.997$) indicated an almost perfect positive correlation between UPI transaction value and the number of banks live on UPI. Furthermore, regression analysis showed that 96.4% of the variation in financial inclusion could be explained by these digital financial indicators, with the model being statistically significant at the 5% level ($p = 0.036$).

In conclusion, the findings strongly support the hypothesis that digital platforms like UPI play a crucial role in advancing financial inclusion in India. As digital infrastructure continues to grow, its integration with traditional banking systems will remain a key driver in making financial services more accessible, especially to underserved populations.

References

1. IS. K. Chattopadhyay (2011). West Bengal as a Case Study for Financial Inclusion in India (RBI Working Paper Series No. DEPR). Indian Reserve Bank. The URL <https://www.rbi.org.in>
2. Demirgüç-Kunt, A., Hess, J., Klapper, L., Singer, D., and Ansar, S. (2018). The Global Findex Database 2017: Assessing the fintech revolution and financial inclusion. The World Bank Group. The World Bank's Worldwide Index
3. S. Ghosh (2016). Does mobile telephony spur growth? Indian state evidence. 1020–1031 in Telecommunications Policy, 40(10–11), <https://doi.org/10.1016/j.telpol.2016.04.004>
4. Singh, B., and P. Gupta (2020). Fintech's contribution to India's financial inclusion movement. Journal of Financial Studies International, 8(4), 60. ijfs8040060 <https://doi.org/10.3390>
5. Bansal, S. (2014). Perspective of technology in achieving financial inclusion in rural India. Procedia Economics and Finance, 11, 472–480. [https://doi.org/10.1016/S2212-5671\(14\)00214-5](https://doi.org/10.1016/S2212-5671(14)00214-5)
6. Chopra, R., & Jhamb, D. (2020). Impact of digital payment system on financial inclusion. Indian Journal of Economics and Development, 16(4), 691–697.
7. Kum Mehta, S., and Kaur, K. (2021). In the Indian economy, UPI is a new digital payment method. 23(1), 15–21; Journal of Business and Management.