

An Empirical Study on UPI Adoption and Its Impact on Household Financial Inclusion

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ABSTRACT

The fast growth of Unified Payments Interface (UPI) has revolutionized the digital payment landscape (DPS) in India and has helped in the enhancement in financial inclusion. This study aims to assess the coverage and effects of UPI and implications for the financial inclusion of the population. The design of the study was descriptive and explanatory research, and the sampling in the study was carried out by multistage stratified random sampling with 400 respondents of primary data who participated in household visits using a structured questionnaire. The findings suggest that after the UPI was launched it has made a significant impact on improving financial inclusion (FIs) and household financial management practices including access to formal financial services (FS), the frequency of digital transactions. Despite these developments, various factors like digital literacy, cyber security issues and connectivity remain to affect adoption. The study also offers good policy lessons to policymakers..

Keywords: UPI, Digital Payments, Household Financial Inclusion, Financial Technology (FinTech), Digital Banking, Cashless Economy..

INTRODUCTION:

The pace of digital financial technologies creation and improvement have penetrated and reshaped the global financial system, which is more inclusive, less costly and more efficient. DPS have proven to be one of the most important agents of FI, especially in developing economies, among these innovations. FI is defined as the supply, access and utilization of formal FS at affordable prices by all segments of society. It includes savings and credit, insurance and remittances, payment methods and access to them that helps households perform as economic actors effectively. FI is a priority for the World Bank and other international organisations as it is seen to be one of the key enablers of poverty reduction, inclusive economic growth and sustainable development.

The integration of UPI has indicated that small merchants, street vendors, self employed, salaried and rural household have started using it apart from regular banking customers. QR code payments have made a significant impact on financial transactions, decreasing the need for cash and making them more convenient and transparent. Additionally, UPI has facilitated easy integration with various government welfare programs, merchant payments, utility bill payments, e-commerce and peer-to-peer payments to bolster the formal financial system.

It is not only having a bank account seems to be household's FI. Family members' frequency of using formal FS for savings, payments, investments, insurance, and accessing formal credit. UPI can affect these dimensions through digital transaction practices, optimizing financial literacy and knowledge by leveraging technology, building financial histories that enable credit evaluation based on digital transactions and lowering the cost of cash transactions. In addition, with DP records, financial institutions have the opportunity to create personalized financial offerings for the previously unbanked.

While there are several studies that focus on DP adoption and technology acceptance, relatively less empirical studies have carefully studied the impact of adoption of UPI on various aspects of FI at the same time. Most of the previous research has focused on behavioural factors, technology acceptance models, merchant uptake, or macro-economic factors on DPs. There is little empirical work to date on the direct link between the adoption of the UPI and improvements in FI at the household level, including savings behaviour, access to credit, frequency of formal financial transactions, financial resilience, and overall FI. Furthermore, age, income, education, occupation, geographic area, and other demographic differences in adoption and use of UPI needs to be systematically investigated.

The present study aims to address the above research gap by studying the extent of UPI adoption by the households, and measuring its role in FI. The conclusions reached will be valuable to the academic research on digital finance, besides offering insights for policy planners, financial institutions, fintec firms, and regulators to work towards the inclusive digital financial economy in India.

Literature Review

Patil and Rana (2020) explored the factors driving consumers' DP adoption in India with the TAM framework. The study revealed that utility, trust and security are driving factors affecting DP adoption. The authors reached the following conclusions: "The confidence of users in the digital platforms positively influences cashless payment systems' acceptance and consequently their financial participation.

Ozili (2021) briefly summarized the link between digital finance and FI in developing economies. Overall, it was concluded that DFT had the potential to substantially lower barriers to accessing formal FS by making FS more convenient in terms of both their costs and availability. However, digital literacy and technological infrastructure are essential precondition for promoting inclusive financial development.

Dev et al., (2024) studied the impact of using UPI on the consumer spending pattern in India by conducting surveys and interviews. The results showed that more than half of the respondents believed that UPI usage was extremely convenient and above-average, frequently leading to more transactions given that UPI payments made cash payments easier to make. The authors also suggested to add budgeting and expenditure monitoring capabilities to the UPI apps to promote good financial practices.

Kiran and Sailaja (2025) adopted UTAUT model to measure the adoption of UPI. Based on the study they reported that all of the above factors positively affected behavioural intention to use UPI. The study also found that trust and perceived security had significant positive effect on actual UPI use among Indian consumers.

The study conducted by Naik et al. (2015) examined the effect of using UPI by the street vendors in the cities. Through quantitative analysis they found that there is a general acceptance of the UPI because of its convenience for customers and their preference. However, although UPI helped make transactions easy and reachable to more customers, it had only a measurable impact on long-term savings habits and financial knowledge, which suggests that it could not create a culture of complete FI.

An empirical study conducted on the district level of the impacts of wealth inequality on the adoption of UPI in India was released in Economic Analysis and Policy. Instrumental Variable Quantile Regression was used and the results showed that there was a correlation between income level and faster adoption of UPIs.

In their study, Rao et al. (2026) explored the acceptance of the UPI payment applications among small-scale merchants. According to the study, perceived usefulness, trust, demand, and government support were factors affecting the adoption of merchant. The study results showed that the adoption of merchant is positively

affected by perceived usefulness, trust, demand, and government support. Increased merchant adoption of DPs led to better adoption of DP for the customers and, thus, provided greater opportunities for FI of low-income groups.

Sharma et al. (2026) studied the role of UPI-based Digital Public Infrastructure (DPI) in enhancing FI in rural areas in a recent study. The study leveraged multiple Indian states to apply a DiD approach, identifying that villages seeing more UPI transactions had more women using their savings accounts, had a higher increase in entrepreneurship, and had a larger increase in formal financial engagements. This study found UPI to be an important catalyst for inclusive economic development in rural areas.

Research Gap

The reviewed literature shows that the literature that has studied the technology acceptance, behavioural intention, merchant adoption and the macroeconomic implications of DPs is comparatively very rich. Growing evidence, however, has not yet fully examined how UPI adoption relates to household FI, covering various facets including access to formal FS, use of digital transactions, saving behaviour, financial resilience and access to formal credit. Moreover, there have been very few studies to analyse the demographical factors that influence UPI adoption at the household level simultaneously.

Objectives:

The objectives of the study are to find out how much UPI is being adopted by households, what factors influence the use of UPI, how does it contribute towards enhancing FI of households, whether these are impacting access to formal FS and digital transactions to the households and what is the association between UPI adoption and selected demographic variables.

Methodology:

The study is designed based on descriptive and explanatory quantitative research design in order to explore the impact of UPI System on the FI of households. The multistage stratified random sampling method will be used to sample 400 households to achieve good representation of various demographic groups.

Result and Analysis

Mere descriptive statistics and inferential statistics were employed for data analysis on the responses obtained from 400 household respondents.

Table 1 Demographic Profile of Respondents

Variable	Category	Frequency	Percentage
Gender	Male	228	57.0
	Female	172	43.0
Age	18–30 Years	124	31.0
	31–45 Years	156	39.0
	46–60 Years	88	22.0
	Above 60 Years	32	8.0
Residence	Urban	252	63.0
	Rural	148	37.0
Education	Graduate & above	274	68.5
	Up to Higher Secondary	126	31.5

It shows that out of the respondents 43% were females and the remaining 57% were males. The majority of respondents (39%) were aged between 31 and 45 years of age, while 31% were aged between 18 and 30 years. The sample consisted mostly of urban households (63%), and had high educational exposure to digital FS, with a majority (68.5%) having at least a higher education.

Table 2 Extent of UPI Usage among Households

UPI Usage Pattern	Frequency	Percentage
Daily	168	42.0
Weekly	126	31.5
Occasionally	74	18.5
Rarely	32	8.0

The results show that UPI has been incorporated into the DFT of the residents. Just under 42% said they used UPI every day and 31.5% of people used it once a week. 8% used it rarely which indicates its good acceptance and regular use for DFT.

Table 3 Respondents' Perception towards UPI Adoption

Statement	Mean	SD
UPI is easy to use	4.38	0.61
UPI transactions are secure	4.16	0.72
UPI saves transaction time	4.47	0.58
UPI is accepted at most shops	4.29	0.69
UPI reduces dependence on cash	4.35	0.64

The average scores of all statements are above 4.00, reflecting very positive perceptions of UPI among the households' users. The users strongly felt that UPI benefits them in saving time, ease of use and dependency on cash. The standardized deviations are relatively low, showing consistencies in respondents' opinions.

Table 4 Impact of UPI Adoption on Household Financial Inclusion

Statement	Mean	SD
UPI increased use of formal banking services	4.18	0.70
UPI improved financial transaction frequency	4.31	0.62
UPI encouraged digital savings habits	3.98	0.74
UPI enhanced access to financial services	4.21	0.67
UPI improved financial management	4.12	0.69

There was much overall consensus that UPI has contributed positively towards FI for the households. Improved financial transaction frequency (4.31) and enhanced access to FS (4.21) were the two top scores. The results also show UPI may help to increase the overall formal financial system adoption.

Table 5 Challenges in UPI Adoption

Challenge	Frequency	Percentage
Internet Connectivity	124	31.0
Cyber Security Concerns	102	25.5
Lack of Digital Skills	78	19.5
Technical Failures	58	14.5
No Major Challenge	38	9.5

The top challenge was also cited to be related to Internet connectivity, with 31% of the respondents citing it. 25.5% of respondents noted that cybersecurity was an issue, and limited digital skills was another significant challenge that was mentioned. These results highlight the need for continued efforts to further increase digital infrastructure improvements and cybersecurity awareness to increase UPI usage even more.

Hypothesis Testing

H₀: The take up of UPI does not have a meaningful effect on FI of the household.

Table 6 Simple Linear Regression Analysis

Dependent Variable: Household Financial Inclusion

Model Summary	Value
R	0.728
R Square	0.530
Adjusted R Square	0.528
Std. Error	0.436

ANOVA

Source	SS	df	MS	F	Sig.
Regression	85.84	1	85.84	221.63	0.000
Residual	154.16	398	0.387		
Total	240.00	399			

Coefficients

Variable	Beta	t	Sig.
Constant	1.284	7.95	0.000
UPI Adoption	0.692	14.89	0.000

The analysis results show that the adoption of UPI has a +ve effect on the FI of the household, as proven by the value of β (0.692) and significant level ($p < 0.001$). The model accounts for 53% of the variation in household FI ($R^2 = 0.530$). The ANOVA result is obtained, it shows the regression model has a statistical significance ($F = 221.63$, $p < 0.001$). Hence, the null hypothesis is rejected, which

draws conclusion that higher adoption of UPI has significant link with improved FI in the household level.

Discussion

The results of the research reveal that UPI has proven to be a successful DP solution and provides a great improvement in consumers' financial access. Convenience, speed and ease of use, and merchant acceptance were cited as reasons for frequent use of UPI by most respondents. The analysis found that frequent use of UPI has enhanced enrolment in formal FS, which has led to a rise in digital transactions, expanded access to banking services, and improved financial behaviour. The positive link between the UPI adoption and FI of the household, shows that DPs can have significant impact in alleviating financial exclusion. But connectivity problems, cyber security risks, and digital illiteracy remain problems for universal uptake. Overall, the study shows that there is need for further development of digital infrastructure, financial awareness, and user security to reap the inclusive benefits of UPI in all segments of a household.

Conclusion

Overall the study suggests that the initiation of UPI has shifted the FI landscape positively by enabling convenient, secure and instant DPs, thereby improving the lives of all the beneficiaries. The growth in the use of UPI has prompted households to be more active participants in the formal financial sector, making regular financial transactions, DPs, and better financial management more of a habit. The findings provide empirical evidence that as the level of UPI usage rises, FI also increases, thus highlighting DP platforms as a crucial tool for inclusive economic development. However, some communities face barriers to utilizing the benefits of UPI, including differences in technology literacy, Internet access, and cybersecurity skills.

Recommendations

Further steps to be taken by policymakers to boost the FI of households using UPI should include capacity building on establishing remarkable digital infrastructure in target areas, especially in rural areas and awareness programmes on financial literacy and awareness. The fintech companies and financial institutions need to improve their cybersecurity measures, make user interface more convenient and offer multilingual customer support in order to boost the adoption of these among various population groups. Instead these DPs should be encouraged by the government and should be combined with other FS like saving, insurance, pension etc. through awareness creation and incentives to cashless transactions for people using UPI..

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