

Assessing the Effect of Digital Transactions on India's Private Consumption

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DOI: 10.46609/IJSSER.2025.v10i10.031 URL: <https://doi.org/10.46609/IJSSER.2025.v10i10.031>

Received: 4 October 2025 / Accepted: 22 October 2025 / Published: 29 October 2025

ABSTRACT

This paper strives to estimate the impact of digital payment systems on household consumption in India, based on the diverse outcomes associated with different platforms. The empirical finding indicates that mobile wallets generate the strongest positive effect, contributing nearly ₹191.97 crore to private consumption. Mobile banking and NEFT transactions also enhance consumption, reflecting their growing acceptance for day-to-day expenses. By contrast, card transactions show a negative relationship with consumption, suggesting a closer association with capital-oriented spending rather than routine household use, while IMPS transactions are found to be insignificant. The results confirm the importance of digital finance in changing the behaviour of consumers through improved access to finance, reduction in transaction costs, and ease of payment systems. However, the diverse effects indicate the spending behaviour complexity in a more digitalised economy. In order to ensure sustained growth in consumption, it is important to build trust, improve financial literacy, and enhance the broad-based use of innovative digital financial services.

Introduction

Over the past few years, digital payments have changed consumer behaviours, domestic spending and economic expansion in the country. In 2016, the introduction of the Unified Payment Interface (UPI) led to a notable change in the manner individuals in India access and make use of financial services. Mass adoption of smartphones, cheap internet penetration, and demonetization and Digital India initiatives from the government resulted in UPI becoming a stable part of the country's digital payment system. UPI is convenient and secure, which has enabled millions of consumers who were not part of the formal financial system earlier to use digital payments.

Existing research shows that digital transactions are a major driver of private consumption. Some studies demonstrate how convenience, lowered transaction costs, and financial inclusion

encourage spending, especially on discretionary and expensive goods. On the other hand, issues like fraud, overspending, and unequal adoption trends highlight the difficulties in the adoption of digital payments. Evidence from other countries such as Thailand, Nigeria, China, and Indonesia reinforces the link between mobile payments and increased household consumption, while also drawing attention to trust, financial literacy, and regional disparities as important mediating factors. Within India, research suggests that UPI platforms not only increase private consumption but also alter consumer behaviour by lowering reliance on cash.

India has one of the fastest-growing digital payment markets in the world, with monthly UPI transactions crossing billions. However, the benefits of digital transactions are not equally shared by different income groups or between urban and rural areas. Mobile wallets and UPI are frequently used and have been swiftly adopted by urban consumers, while the adoption in rural areas has been slower due to issues with digital literacy and trust. In addition to this, card transactions, which were more prevalent before UPI, seem to have very different functions in household finances. Card-based payments are being frequently used for payments associated with investments or expensive items. Since payment methods vary, it's critical to examine how they affect consumption differently.

This study aims to examine the impact of digital payment systems on consumption expenditure in India. In this context, it included various forms of digital transactions as classified by the Reserve Bank of India (RBI), which are NEFT, IMPS, card transactions, mobile wallet (M-Wallet) and mobile banking. This information about the digital payment systems is secondary data that is collected from the RBI Database on Indian Economy (DBIE), along with aggregate private consumption expenditure data from the same source. It should be noted that all this data was reported for 2011-2012 to 2024-2025, hence covering phases before and after UPI adoption. By doing this, the study provides a fresh perspective on how digital finance influences household spending and promotes India's overall economic expansion.

Literature Review

Suwanragsa et. al (2021) examine how electronic payments stimulate consumption and economic growth in Thailand due to reduced transaction costs and convenience. The study concludes that Internet/ Mobile banking and E-Money are strongly linked to both Private Consumption Expenditure and real GDP growth due to widespread mobile adoption and government policies. Minphimai (2023) finds that digital payment innovations such as Thailand's State Welfare Card influence household consumption and financial literacy in the country. They result in increased in-kind spending, improved financial knowledge and reduced risk-taking behaviour. Despite this, there is no significant change in trust towards digital payment systems. Damian-Okoro (2025) examines how mobile money and digital payment systems affect consumer behaviour in Nigeria

by comparing it to India, Brazil and Kenya. The study finds that UPI platforms like Google Pay and PhonePe have significantly increased private consumption in India by promoting digital transactions, enhancing financial inclusion, and increasing convenience. Oyelami et. al (2020) highlight that the adoption of electronic payments is driven by trust, awareness and convenience. They play a part in shaping consumer purchases and in overall household spending. While these findings are country-specific, the implication is that UPI platforms in India would also contribute to private consumption by increasing consumer confidence and transaction convenience. Drawing from CGSS 2017 data, Wei Yang et. al (2023) sought to establish if Chinese consumers' use of mobile payments has a direct effect on the market expenditure for online shopping.

When considering Ahunov and Van Hove's revisions more carefully, it becomes evident that their changes are less impactful than they used to be, thus emphasising the need for careful sampling. The study warns that one must be more careful regarding the research of UPI platforms to personal consumption in the Indian digital market. Agarwal et. al (2019) aim to examine how the adoption of digital payment post the 2016 Demonetization in India changed consumer spending behaviour. The data shows that the shift to digital payments led to a substantial increase in spending on high-value items. These platforms, though, are not free from criticism, for their security and convenience often result in loss of control, leading to overspending. A study by Singh et. al pointed out that the ease of use of online payments is accompanied by an increase in improper use of credit cards, which in turn has led to the development of models for detecting and preventing such fraud. To enhance security, a new fraud detection model has been proposed which considers the mobile spending usage pattern along with the user's spending profile. When implemented on UPI platforms, these behavioural changes may ease the spending process, potentially increasing private consumption in India. Zheng et. al (2022) investigates how the adoption of mobile payment influences household online shopping expenditure, with a focus on gender differences. Using 2017 CGSS data and an IV-Tobit model, it finds significant positive effects for females but not for males. This study and prior studies link mobile payments to increased private consumption. Lyons et. al (2022) examine the relationship between fintech development and financial behaviors in 16 of the world's largest emerging economies using the Global Fintech Index. Although disparities exist, it finds a strong correlation between fintech and financial inclusion. This shows that while access has improved, usage remains inconsistent, posing problems which are relevant to understanding UPI's influence on India's private consumption. Zhang et. al (2021) analyse how China's digital economy drives high-quality economic development. Using panel data and econometric modeling, it finds a strong positive impact, with technological progress as a key mediator. The research highlights regional disparities and offers insights relevant to India's digital-led consumption growth. Titalessy (2020) assesses the relation between Indonesia's inflation and

cashless transactions. It notes that while debit and credit cards have no meaningful impact on inflation, electronic money does. This emphasizes the function of digital transactions in an economy and provides pointers about the likely impact that UPI may have on private consumption in India. Setiawati (2023) finds that digital payments and digital marketing considerably impact the purchase of fruits and vegetables, while the perception of price does not. It illustrates the role of digital payment systems in fostering trust and ease in online shopping, thereby solidifying the case for UPI's impact on consumer behaviour and private consumption in India. Ranta et. al (2021) illustrates the impact of digital technologies, more specifically, data integration and analytics on the innovation of business models that improve the objectives of the circular economy. Using multiple case studies it illustrates how firms employ digital mechanisms to enhance value creation, resources productivity, and consumer knowledge, drawing parallels on UPI's influence on private consumption behaviour. In a bibliometric review, Pattnaik et. al (2024) outline increased scholarly attention devoted to the incorporation of artificial intelligence and machine learning systems within the BFSI domain, particularly in relation to fintech, fraud detection, and risk management. The study provides insights into how AI-driven innovations are changing digital finance and influencing consumer financial behaviour by mapping research trends and clusters. Research by Mahesh et al. (2022) shows how UPI-based platforms have contributed to financial inclusion and reduced reliance on cash. Their adoption after demonetization made transactions easier and boosted spending. It highlights the role of UPI in increasing private consumption through simple payment processes, mobile accessibility, and integration with major platforms like WhatsApp and Google.

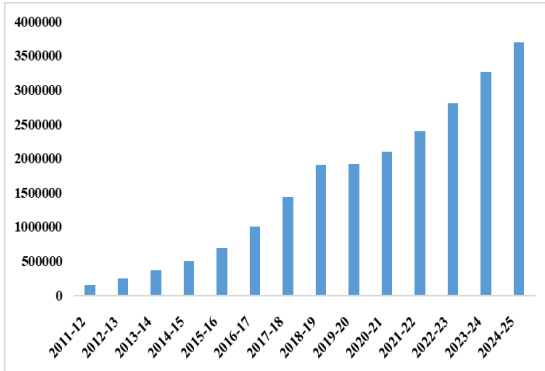
Data and Methodology

Data

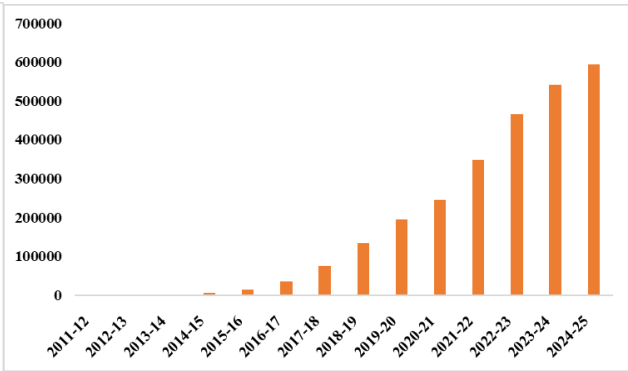
As already mentioned that current investigation endeavor to examine the impact of digital payment system on the consumption expenditure in India. To accomplish the aforementioned object current research, consider various digital payment systems which includes NEFT, IMPS, Card transaction, M-Wallet, Mobile Banking respectively as classified by the Reserve Bank of India (RBI). The data of digital payment systems has been collect form the RBI data base which can be accessed freely at <https://data.rbi.org.in/#/dbie/home>. On the other hand, aggregate consumption data has been gathered from RBI website. All the data are in rupees' crore (10 million) and the time period of data includes from 2011-12 to 2024-25.

Figure 1: Different digital transaction

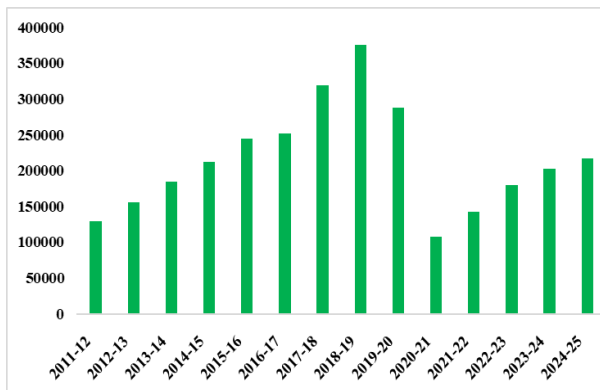
NEFT Transaction



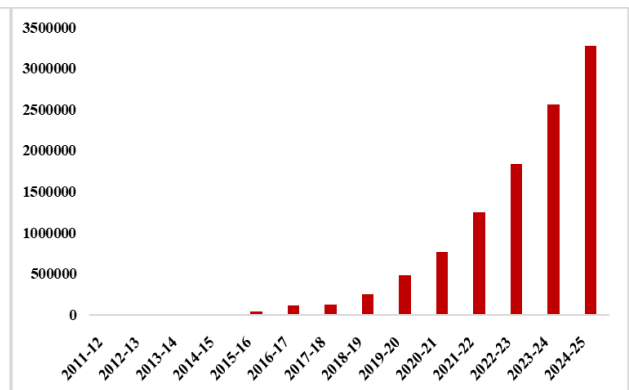
IMPS Transaction



Card Transaction



M Wallet Transaction



Mobile Banking Transaction

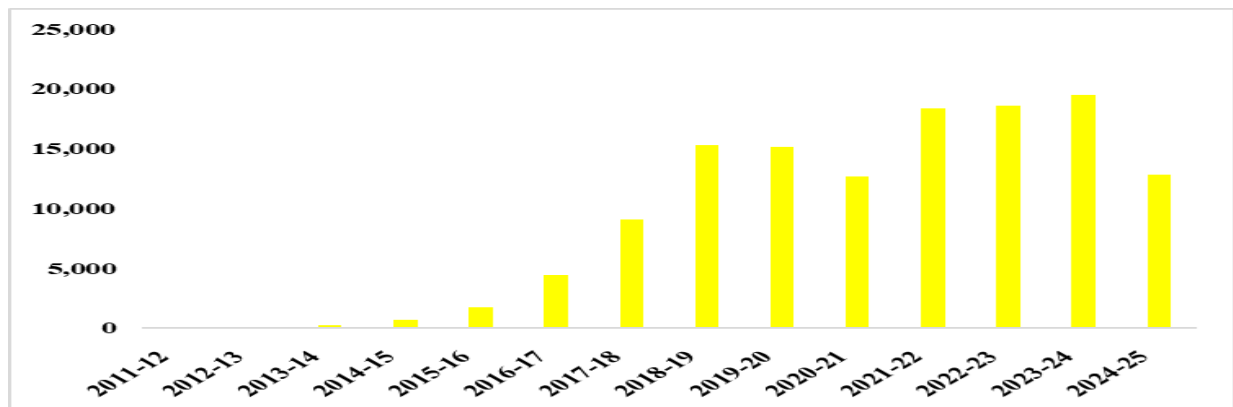
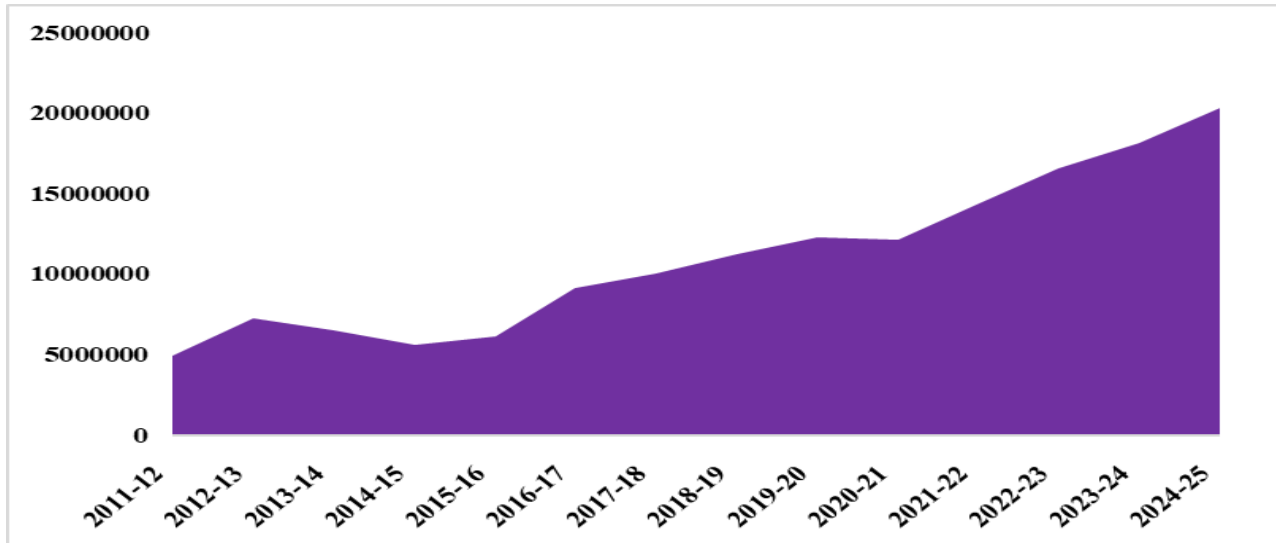


Figure 2: Consumption expenditure in India from 2011-12 to 2024-25



Regression Model

$$Consumption = \alpha + \beta_1(NEFT) + \beta_2(IMPS) + \beta_3(CARD) + \beta_4(M\ Wallet) + \beta_5(Mobile\ Banking) + \epsilon \tag{1}$$

We have applied above regression model to estimate the impact of digital transaction system such as NEFT, IMPS, Card transaction, M-Wallet, Mobile Banking on the consumption in India. In the current model consumption is our dependent variable. On the other hand, α represent the intercept term, while $\beta_1, \beta_2, \beta_3, \beta_4$ and β_5 are the coefficients of explanatory variables such as NEFT, IMPS, Card transaction, M-Wallet, Mobile Banking respectively. Moreover, ϵ represent the stochastic error terms. We apply the method of ordinary least square (OLS) technique to estimates the coefficients of the above regression model, which is one of the robust technique of estimation in the above context. Additionally, student's t test is applied to examine the significance of estimated coefficients. The student's t test is appropriate to apply when we are not above about the population standard deviation.

The null and alternation hypothesis under t test can be displayed below

$$H_0: Coefficient\ value = 0$$

$$H_a: Coefficient\ value \neq 0$$

The null hypothesis states that the coefficient value is equivalent to zero, while alternative hypothesis assumes that coefficient is significantly different from zero. A larger t value shows

that the coefficients are significant and substantial impact explanatory variables on the explained variables which is consumption in the present context.

Result Analysis

4.1 Descriptive analysis

Table 1: Outcome Descriptive Analysis

	NEFT	IMPS	Card Transaction	M-Wallet	Mobile Banking	Consumption
Mean	1603680	189252.7	214906.8	9888.543	763286.6	11032682.88
Standard Error	310777.7	57678.46	20216.52	2093.5	286480.1	1307184.23
Median	1667353	103448.1	206878.8	12662.09	184677.6	10620724.5
Standard Deviation	1162824	215813.1	75643.29	7548.22	1071911	4891035.55
Coefficient of Variation	69.74	208.62	36.56	59.61	580.42	46.05
Kurtosis	-1.03	-0.70	0.08	-1.73	1.12	-0.75
Skewness	0.36	0.87	0.66	-0.18	1.46	0.53
Range	3547593	594922.3	268367.6	19446.05	3273917	15387965.8
Minimum	149195.8	3.5	107649.9	83.41143	151.6667	4910447.27
Maximum	3696789	594925.8	376017.5	19529.46	3274069	20298413.08

Source: Author calculations

Current analysis begins with the presentation of descriptive statistics outcome of all the variables under consideration, which includes digital payment systems such as NEFT, IMPS, Card transaction, M-Wallet, Mobile Banking (see table 1). On the other hand, this research also presents the summary statistics of consumption. The pertinent outcome of descriptive statistics reveals that average IMPS transaction forms the period of 2011 to 2022 was 1603680 (crore), while IMPS value was 189252.7 (crore) respectively. Moreover, the mean card transaction during 2011 to 2022 was 214906.8 (crore), which includes the debit and credit card transaction. Additionally, we find that the average transaction done through M-Wallet and Mobile banking were 9888.543 and 763286.6 (crore) respectively. Moreover, the average aggregate private final consumption expenditure from 2011 to 2022 was 11032682.88 (crore). In addition, the result of coefficient of variation reveals that mobile banking and IMPS transaction shows the high level of variation in comparison to other variables, while card transaction shows the high level of consistency in India. Moreover, the result of skewness exhibit that all the variables are positively skewed except of M-Wallet transaction, which seems to be negatively skewed. After exploring the descriptive statistics property of the data set, current analysis also reveals the result of correlation analysis, which has been exhibited below in the table no 2.

4.2 Correlation Analysis Outcome

Table 2: Outcome Regression Analysis

	NEFT	IMPS	Card Transaction	M-Wallet	Mobile Banking	Consumption
NEFT	1.000					
IMPS	0.964	1.000				
Card Transaction	0.069	-0.137	1.000			
M-Wallet	0.882	0.810	0.041	1.000		
Mobile Banking	0.911	0.973	-0.163	0.664	1.000	
Consumption	0.986	0.974	0.015	0.847	0.934	1.000

Source: Author calculations

Note: *** is significant at 1% and ** at 5%

The outcome correlation analysis shows the positive relationship between the aggregate consumption and all the payment system considered in the current analysis which includes NEFT, IMPS, Card transaction, M-Wallet, Mobile Banking. Based on the outcome of correlation analysis it can be surmised that consumption has high level of positive relationship with NEFT and IMPS digital transaction. On the other hand, it can be found that consumption is not associated with card transaction in India, which signifies that card transaction mostly devoted to investment or capital formation expenditure. After getting the relevant outcome based on correlation analysis, this research also applies the regression analysis to exhibit the impact of various digital payments on consumption expenditure.

4.2 Regression Analysis Outcome

Table 3: Outcome Regression Analysis

	Coefficients	P-value
Intercept	5948070***	0.002
NEFT	1.84**	0.050
IMPS	-8.58	0.42
Card Transaction	-1.40*	0.09
M-Wallet	191.97*	0.08
Mobile Banking	3.10**	0.03
R ²	0.96	
DW Statistics	1.83	

Source: Author calculations

Note: ***, **, * are significant at 1, 5 and 10 percent respectively.

Table 3 reveals the result of regression analysis, which shows the impact of digital payment systems such as NEFT, IMPS, Card transaction, M-Wallet, Mobile Banking on consumption expenditure in India. Based on the above consequence it can be infer that digital transactions such as M-Wallet leads to significant positive impact on the consumption at 8 percent level of significance. Our result shows that one crore rupees increase in M-Wallet transaction leads to advancement consumption by 191.97 crore rupees, which shows the vitality of M-Wallet payment system in the contemporary time period. On the other hand, our result shows that one crore advancement of mobile banking transaction leads to surge in consumption by 3.10 crore rupees. Moreover, we also find that NEFT transaction also has positive impact on consumption. The advancement of NEFT traction by one crore rupees cause upsurge of consumption by 1.84 crore rupees in India. On the other hand, our result shows no significant impact of IMPS digital transaction on consumption in India. Finally, our result that card transaction has negative significant impact of consumption at 9% level of significance. The advancement of card transaction by 1 crore rupee leads to fall in consumption by 1.4 crore rupee in India.

Conclusion

The findings indicate that digital payment systems have had a significant impact on consumption, though this influence varies depending on the mode of payment. Mobile wallets show the biggest positive impact, resulting in an approximate 191.97 crore rupee increase in private consumption. Similarly, mobile banking and NEFT transactions show significant positive contributions to private consumption, reflecting the increasing reliance of households on these platforms for everyday expenditures. Card transactions, on the other hand, exhibit a negative relation with consumption, indicating the possibility that it is associated with investments and capital expenditure rather than domestic consumption. However, no significant effect for IMPS transactions is observed. Overall, the results show that India's digital payment infrastructure is changing the way we consume. Digital payment systems such as UPI have facilitated spending, reduced transaction costs and increased financial inclusion. The varying impacts of alternative payment options highlight the fact that consumer behaviour in such a digital society is not straightforward. It emphasises the importance of promoting innovative, secure and inclusive digital financial services to sustain a growing private consumption. Despite these benefits, it is crucial to address problems like financial literacy, fraud, and unequal adoption.

Acknowledgment

I would like to sincerely thank Dr Amritkant Mishra for all his help, support and encouragement throughout the research process. His knowledge of the subject matter and insightful feedback greatly influence the study.

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