

Digital Payment Adoption and Consumer Spending Behaviour in India: Evidence from UPI Growth, Convenience and Trust (2020–2026)

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Abstract

The rapid expansion of digital payments has altered the way consumers purchase goods and services in India. Among the available digital payment instruments, the Unified Payments Interface (UPI) has become particularly important because it combines real-time settlement, interoperability, mobile accessibility and widespread merchant acceptance. This study examines the relationship between digital-payment development and consumer buying behaviour, with specific attention to perceived convenience, trust and spending behaviour. The research adopts a descriptive-analytical design based entirely on secondary evidence. Data are drawn from the Reserve Bank of India's Digital Payments Index (RBI-DPI), National Payments Corporation of India (NPCI) UPI statistics, Government of India releases and recent empirical studies on UPI adoption and consumer spending. The RBI-DPI increased from its March 2018 base of 100 to 493.22 in March 2025, while UPI transaction volume rose from 2 crore transactions in FY2016–17 to 24,161.69 crore in FY2025–26. Government data further report UPI transaction value of approximately ₹314 lakh crore in FY2025–26 and 55.49 crore users onboarded by June 2026. Evidence from prior empirical research indicates that convenience and trust are important determinants of UPI adoption. A study reported that approximately three-fourths of respondents perceived an increase in their spending after adopting UPI, while 91.5% reported satisfaction and 95.2% considered UPI convenient. The present study does not claim a new causal estimate because no primary observations or raw micro-data were collected. Instead, it triangulates official payment-system indicators with published behavioural evidence. The results indicate that digital-payment expansion is associated with greater transaction frequency and may reduce the psychological friction associated with payment, thereby influencing purchase behaviour. The study contributes by connecting technology-adoption factors with consumer-finance outcomes and by highlighting the need for secure, inclusive and financially responsible digital-payment ecosystems.

Keywords: Digital payments; Unified Payments Interface; UPI adoption; consumer buying behaviour; convenience; trust; consumer spending; digital financial inclusion.

1. Introduction

India's payment ecosystem has undergone a structural transformation during the last decade. The movement from cash-intensive transactions towards electronic and mobile-enabled payments has been

supported by expanding banking access, smartphones, internet connectivity, QR-code acceptance, policy initiatives and payment innovations. Within this transformation, the Unified Payments Interface (UPI), launched in 2016 by NPCI under the regulatory framework of the Reserve Bank of India (RBI), has emerged as a central component of India's retail digital-payment architecture.

The significance of UPI extends beyond payment convenience. A payment method can influence when, where and how consumers purchase because it changes transaction speed, information visibility, perceived effort and the salience of money leaving the consumer's possession. Cash payments often provide a tangible signal of expenditure, whereas an instantaneous mobile payment may make a purchase feel less effortful. Consequently, the growth of digital payments raises an important commerce question: does the increasing ease of digital payment merely substitute one payment mechanism for another, or does it also modify consumer purchasing and spending behaviour?

This question is particularly relevant in India because UPI has achieved very large-scale adoption. Official figures show that annual UPI transactions increased from 2 crore in FY2016–17 to 24,161.69 crore in FY2025–26. The same official release reports approximately ₹314 lakh crore in transaction value during FY2025–26. These figures demonstrate the extraordinary scale of the infrastructure, but transaction volume alone cannot establish that consumers spend more. Behavioural interpretation therefore requires evidence from user-level research on convenience, trust, satisfaction and reported changes in spending.

The present study addresses this issue through a secondary-data synthesis. It combines macro-level indicators of digital-payment development with findings from empirical studies of UPI users. The central argument is deliberately cautious: the evidence is consistent with a positive relationship between payment convenience, trust, UPI adoption and consumer spending, but the available secondary evidence does not justify a claim that UPI alone causes an increase in aggregate consumption. This distinction is essential for a research article intended for a scholarly commerce journal.

2. Review of Literature

2.1 Digital payment adoption and technology acceptance

Research on digital-payment adoption commonly draws on the Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), UTAUT2 and related acceptance frameworks. These perspectives generally suggest that perceived usefulness or performance expectancy, effort expectancy, social influence, facilitating conditions and trust can shape intention and actual usage. In payment settings, convenience is closely connected with performance expectancy because users value speed, ease, availability and the ability to transact without physical cash.

Razi-ur-Rahim, Rabbani, Uddin and Shaikh (2024) examined UPI adoption using an extended meta-UTAUT framework. Their study provides evidence that performance expectancy is an important factor associated with UPI use and that trust contributes to users' attitudes towards the system. Their findings are relevant to the present study because they establish a theoretical pathway from perceived utility and trust to payment usage rather than treating adoption as a purely technological phenomenon.

2.2 Convenience and consumer payment behaviour

Convenience is multidimensional in digital payments. It includes the ability to pay at any time, reduced dependence on cash, rapid confirmation, interoperability across participating banks and applications, QR-based merchant acceptance and relatively low transaction effort. Such characteristics can reduce the time and cognitive effort required to complete routine purchases. For merchants, easy acceptance can also reduce checkout friction and facilitate small-value transactions.

The behavioural literature suggests that lower payment friction can affect expenditure decisions. Dev et al. (2024), using a survey and follow-up interviews with Indian UPI users, reported that approximately 75% of respondents indicated increased spending after adopting UPI. The study also reported high satisfaction and convenience perceptions. These findings do not establish population-level causality, but they provide direct user-level evidence that payment technology may influence the perceived cost of spending.

2.3 Trust, security and continued usage

Trust is especially important in financial technology because payment adoption involves perceived risks relating to money, personal information, transaction failure and fraud. Users are more likely to continue using a payment service when they believe that transactions are reliable, security controls are adequate and problems can be resolved. In UTAUT-related research, trust may influence attitudes and intentions, while actual system performance can reinforce or weaken that trust over time.

The UPI ecosystem has been supported by regulatory oversight, authentication requirements, dispute-resolution mechanisms and continuing system-level security measures. These institutional features can reduce perceived risk, although they do not eliminate fraud or operational risk. Therefore, trust should be understood as a continuing condition for adoption rather than a one-time characteristic.

2.4 Digital payments and the 'pain of paying'

Behavioural economics provides a complementary explanation for why payment technology may affect spending. The concept commonly described as the 'pain of paying' proposes that the psychological experience of making a payment can influence consumption decisions. Digital payments can reduce the visibility and physical salience of money leaving the consumer. When payment is rapid and embedded into a mobile interface, the psychological barrier associated with spending may be lower than with a cash transaction. The evidence from UPI-user studies is consistent with this mechanism, but further experimental and longitudinal research is required to establish its magnitude and persistence.

2.5 Research gap

Existing research provides substantial evidence on digital-payment adoption, but a smaller proportion of studies connects adoption determinants with consumer buying outcomes. A large part of the literature examines intention, attitude, satisfaction or continued use. At the same time, official indicators such as the RBI-DPI and NPCI transaction statistics document the rapid growth of digital payments at the system level but do not directly measure individual consumption behaviour. This creates a research gap between macro-level payment expansion and micro-level consumer outcomes.

A further limitation in the existing evidence is sample concentration. User surveys often contain relatively urban and digitally capable respondents, while the effects of digital payments on rural consumers, older adults and financially vulnerable households remain less clearly established. The present study therefore treats national payment statistics and user-level survey findings as complementary rather than interchangeable sources of evidence.

3. Objectives of the Study

- To examine the growth of digital payments in India using RBI-DPI and UPI indicators.
- To assess the role of perceived convenience in UPI adoption and consumer payment behaviour.
- To examine the role of trust and perceived security in UPI usage.
- To synthesise published evidence concerning the association between UPI adoption and consumer spending behaviour.

- To develop theoretical, managerial and policy implications for the digital-payment ecosystem.

4. Conceptual Framework

The conceptual framework proposes that perceived convenience and trust influence UPI adoption and usage, while increased usage can influence the frequency and ease of consumer purchases. The framework is informed by UTAUT/UTAUT2 and behavioural-payment perspectives.

Perceived Convenience → UPI Adoption/Usage → Consumer Buying & Spending Behaviour

Trust/Security → UPI Adoption/Usage → Consumer Buying & Spending Behaviour

Digital-payment infrastructure and ecosystem maturity → Greater payment availability → Higher potential for digital transactions

5. Hypotheses

- H1: Perceived convenience is positively associated with UPI adoption and consumer spending behaviour.
- H2: Trust in the security and reliability of UPI is positively associated with UPI adoption and consumer spending behaviour.
- H3: Higher UPI adoption and transaction activity are positively associated with changes in consumer buying and spending behaviour.

Because the present research uses secondary evidence and does not estimate a new regression or structural equation model, these hypotheses are assessed through evidence synthesis rather than through original significance testing.

6. Research Methodology

6.1 Research design

The study follows a descriptive-analytical and evidence-synthesis design. It is based exclusively on secondary information. The approach combines official payment-system indicators with findings from peer-reviewed or scholarly studies concerning UPI adoption and consumer behaviour. No primary questionnaire, interview or experiment was administered for the present study.

6.2 Sources of data

- Reserve Bank of India: Digital Payments Index releases and related payment-system information.
- National Payments Corporation of India: UPI product and ecosystem statistics.
- Press Information Bureau, Government of India: official releases reporting UPI scale, users and annual transaction statistics.
- Peer-reviewed and scholarly research on UPI adoption, trust, convenience and spending behaviour.

6.3 Analytical procedure

The analysis proceeded in four stages. First, major indicators of digital-payment development were identified. Second, UPI transaction trends were organised by financial year. Third, behavioural findings from published studies were mapped to the conceptual constructs of convenience, trust and spending. Fourth, the macro and micro evidence was triangulated to evaluate whether the proposed relationships were supported. The study deliberately avoids presenting the alignment of trends as proof of causality.

7. Results and Analysis

7.1 Growth in the RBI Digital Payments Index

The RBI-DPI is a composite indicator designed to capture the extent of digitisation of payments. Its base is March 2018, with a value of 100. The index reached 395.57 in March 2023, 445.50 in March 2024 and 493.22 in March 2025. The September 2025 value was subsequently reported as 516.76. The movement of the index demonstrates sustained growth in payment infrastructure, payment performance and related dimensions of digitalisation.

Period	RBI-DPI
March 2018 (base)	100.00
March 2019	153.47
March 2020	207.84
March 2021	270.59
March 2022	349.30
March 2023	395.57
March 2024	445.50
March 2025	493.22
September 2025	516.76

Table 1. RBI Digital Payments Index: selected published observations. Source: RBI releases and subsequent reporting of the September 2025 index.

7.2 Expansion of UPI transaction activity

UPI growth has been exceptionally rapid. Government and NPCI data report annual transaction volume of 2 crore in FY2016–17 and 24,161.69 crore in FY2025–26. The FY2025–26 figure represents a roughly 12,000-fold increase over the initial annual level. Transaction value reached approximately ₹314 lakh crore in FY2025–26, while the number of banks live on UPI reached 703 by March 2026. By June 2026, the Government of India reported 55.49 crore users onboarded on the UPI platform.

Financial year	UPI volume (crore)	UPI value (₹ lakh crore)
FY2016–17	2.00	0.07
FY2021–22	4,595.61	84.16
FY2022–23	8,371.44	139.15
FY2023–24	13,116.24	199.94
FY2024–25	18,587.13	260.57
FY2025–26	24,161.69	≈314.00

Table 2. Selected UPI annual statistics. Source: NPCI/Government of India releases; FY2025–26 value is reported as approximately ₹314 lakh crore.

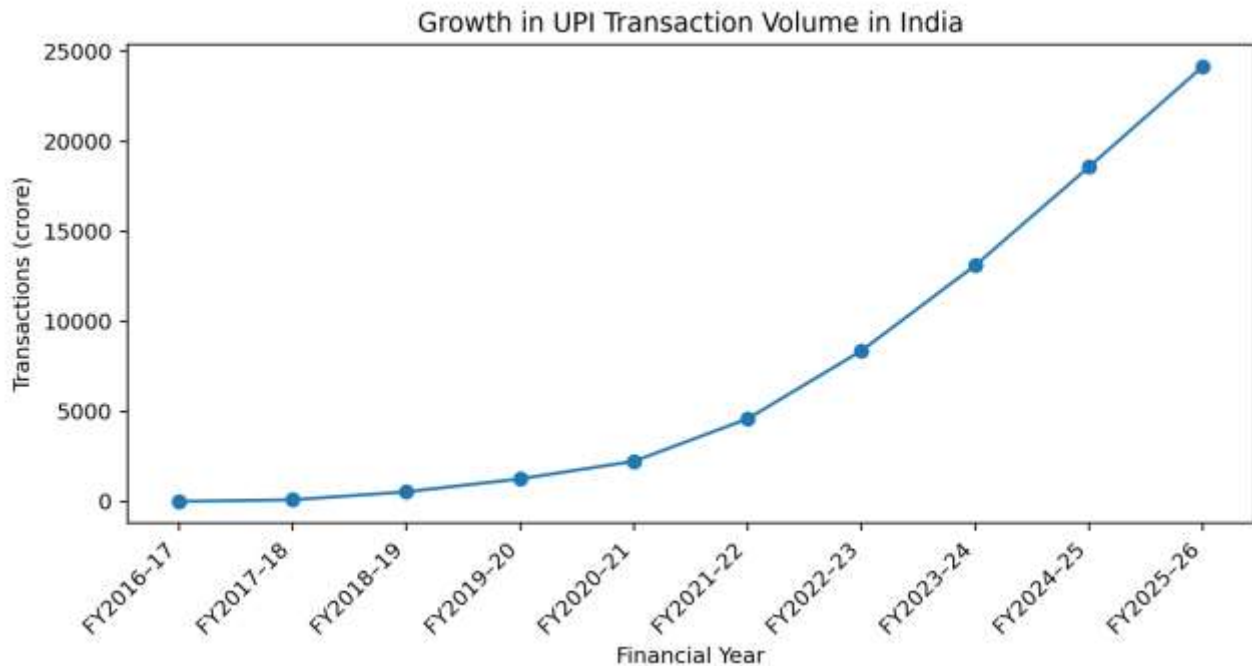


Figure 1. Long-run expansion of UPI transaction volume. Values compiled from official/publicly reported annual statistics; the figure is intended to show scale rather than imply a causal relationship.

7.3 Karnataka in the UPI ecosystem

State-level statistics illustrate that adoption is geographically uneven. NPCI ecosystem statistics for August 2025 reported Karnataka at 1,077.76 million transactions, equivalent to 5.39% of national UPI volume, and ₹1,42,488.77 crore in value, equivalent to 5.73% of national value. Karnataka therefore represents a significant regional component of India's UPI ecosystem, although the national scale of adoption means that no single state accounts for the majority of activity.

The Karnataka evidence is relevant for commerce research because payment adoption is influenced by digital infrastructure, merchant acceptance, consumer familiarity and local economic characteristics. However, the state-level figures are descriptive and should not be interpreted as proof that Karnataka consumers spend more because of UPI.

7.4 Evidence concerning convenience, trust and spending

Published user-level evidence strengthens the behavioural interpretation of the macro trends. Dev et al. (2024) surveyed 276 respondents and conducted 20 follow-up interviews. Approximately 75% of participants reported increased spending because of UPI; 91.5% reported satisfaction with their UPI usage and 95.2% considered UPI convenient. The study also explored financially responsible interface features. These results support the proposition that payment convenience can alter the experience of spending, while simultaneously demonstrating why budgeting and expenditure-awareness tools may be useful.

Razi-ur-Rahim et al. (2024) provide complementary evidence from an extended meta-UTAUT model. Their research indicates that performance expectancy is positively associated with use behaviour and that trust contributes to attitudes towards UPI. The study also reports strong measurement reliability for its principal constructs. Taken together, these findings provide theoretical and empirical support for the convenience–adoption and trust–adoption pathways proposed in this study.

7.5 Assessment of hypotheses

Hypothesis	Evidence from secondary sources	Assessment
H1: Convenience → UPI use/spending	High convenience perceptions and evidence that performance expectancy influences UPI use; reported increased spending among many users.	Supported by convergent secondary evidence; not newly significance-tested.
H2: Trust → UPI use/spending	Published UTAUT-based evidence links trust with user attitudes and adoption-related outcomes.	Supported for adoption; spending pathway remains indirect.
H3: UPI adoption → spending behaviour	Rapid growth in UPI activity coincides with user-level reports of increased spending.	Consistent with a positive association; causality cannot be established from the present design.

8. Discussion

The findings point to a two-level transformation. At the system level, India has experienced extraordinary growth in digital-payment infrastructure and UPI activity. At the consumer level, empirical studies suggest that ease, speed and trust influence adoption and that payment technology can affect the subjective experience of expenditure. The two levels are related, but they should not be conflated. A larger number of UPI transactions is an indicator of payment-system usage, not a direct measure of higher household consumption.

The convenience mechanism is intuitive from a commerce perspective. When a consumer can complete a transaction immediately through a mobile device or QR code, the time and effort associated with payment decline. This can facilitate both planned and unplanned purchases. Small-value purchases may be particularly sensitive to reduced payment friction because the transaction cost of using the payment method becomes negligible relative to the value of the purchase.

Trust operates differently. Convenience can encourage trial, but trust is important for repeated use. Consumers must believe that money will reach the intended recipient, that authentication is secure, that transaction information is protected and that failed or disputed payments can be addressed. The sustained expansion of UPI is therefore consistent with the development of institutional and technological trust, although continued vigilance is necessary because digital systems remain exposed to fraud and operational risks.

The behavioural evidence also raises a consumer-welfare question. Increased spending is not automatically a positive outcome. Greater transaction frequency may represent improved convenience and economic participation, but it may also indicate impulse purchases or reduced expenditure awareness. From a commerce and consumer-finance perspective, the desirable objective is therefore not simply to maximise transaction volume but to create an ecosystem in which digital payments are convenient while consumers retain control over their budgets.

9. Theoretical Implications

The study contributes to technology-adoption research by connecting UTAUT-related constructs with a downstream consumer-finance outcome. Traditional adoption models often terminate at behavioural intention or use. The present synthesis suggests that researchers should consider what happens after adoption: whether payment technology changes purchase frequency, basket composition, impulse buying, budgeting or savings behaviour.

The findings also support a socio-technical interpretation of UPI. Payment behaviour is shaped not only by individual attitudes but also by infrastructure, merchant acceptance, regulatory arrangements, app design and network reliability. The RBI-DPI provides a useful macro-level representation of this ecosystem, while user studies provide insight into individual perceptions. Future research can integrate these levels using panel data or multilevel models.

10. Managerial Implications

- Payment-service providers should continue to prioritise simple interfaces, rapid confirmation, transparent transaction status and reliable customer support.
- Security communication should be clear and practical. Users need understandable information about authentication, fraud prevention, privacy and dispute resolution.
- UPI applications can integrate expenditure summaries, category-wise spending reports, alerts and budgeting features so that convenience does not reduce financial awareness.
- Retailers can treat UPI acceptance as a core checkout capability rather than an optional payment method, particularly where small-value and high-frequency purchases dominate.
- Banks and fintech firms should use consumer education to strengthen safe payment practices, especially among first-time and less digitally experienced users.

11. Policy Implications

The evidence supports continued investment in digital-payment infrastructure, but expansion should be accompanied by inclusion and consumer protection. Rural connectivity, digital literacy, accessibility for older users and reliable grievance mechanisms remain important. As UPI becomes increasingly central to retail payments, system resilience and fraud-risk management become matters of broader economic significance.

Policy should also distinguish between payment digitisation and financial well-being. A rise in digital transactions is desirable when it reduces transaction costs and expands inclusion, but consumer protection should address the possibility of excessive or poorly monitored spending. Digital financial-literacy initiatives can therefore complement payment infrastructure programmes.

12. Limitations of the Study

- The study uses secondary data and therefore does not collect new individual-level observations.
- The macro indicators do not directly measure household consumption, disposable income or individual spending amounts.
- Published behavioural studies may contain urban or digitally capable samples and therefore may not represent all Indian consumers.
- The hypothesis assessment is evidence-based rather than a new regression, correlation or structural-equation test.

- Some secondary information in the supplied manuscript originated from media or institutional reporting; the revised version gives greater weight to official and peer-reviewed sources.
- Because digital payments are evolving rapidly, future UPI features, regulatory changes and changes in consumer behaviour may alter the relationships observed in the current evidence.

13. Scope for Future Research

- Conduct longitudinal studies comparing consumer expenditure before and after sustained UPI adoption.
- Use transaction-level or panel data, where ethically and legally available, to distinguish higher transaction frequency from higher monetary consumption.
- Compare rural and urban consumers, different age groups and different income categories.
- Examine whether UPI affects impulse purchases, budgeting, saving behaviour and credit use differently across consumer segments.
- Develop causal designs, such as natural experiments or controlled interventions, to identify the independent effect of payment-method changes on spending.
- Investigate emerging payment features, including UPI-linked credit, cross-border payments and other digital public-payment innovations.

14. Conclusion

India's digital-payment transformation has moved from experimentation to large-scale everyday use. The RBI-DPI has risen substantially from its 2018 base, while UPI has expanded from a small payment channel into one of the country's dominant retail-payment mechanisms. Official statistics demonstrate the scale and persistence of this transition, and empirical studies provide evidence that convenience and trust are important drivers of adoption.

The available behavioural evidence further suggests that UPI can influence the experience and frequency of consumer spending. However, the evidence should be interpreted carefully. The present secondary-data design does not demonstrate that UPI independently causes an increase in aggregate household expenditure. Instead, it establishes a coherent pattern: greater digital-payment availability is accompanied by rapid UPI adoption; convenience and trust are associated with usage; and many surveyed users report changes in spending after adoption. This convergence justifies further causal investigation rather than an overstatement of causal certainty.

For commerce researchers, the major implication is that payment technology should be studied as part of consumer behaviour rather than merely as a settlement mechanism. For businesses, the challenge is to deliver frictionless and secure payment experiences while maintaining customer trust. For policymakers, the objective should be a digital-payment ecosystem that is inclusive, resilient and supportive of responsible financial behaviour.

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