

A STUDY ON EFFECT OF DIGITAL PAYMENT PRACTICES ON CONSUMER BEHAVIOUR WITH SPECIAL REFERENCE TO SELECTED CITIES OF MADHYA PRADESH

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Abstract—This study examines how the rapid expansion of digital payment practices—especially UPI, mobile wallets and QR-based payments—has reshaped consumer behaviour in selected cities of Madhya Pradesh. Using a mixed-methods approach (structured survey + focused interviews) across urban and semi-urban centres, the research investigates adoption levels, drivers (infrastructure, awareness, digital literacy), perceived benefits (convenience, speed) and risks (security, fraud), and the resultant effects on spending patterns (frequency, impulsive purchases, category shifts). Prior literature shows that consumer perception and trust in the payment ecosystem strongly determine the choice of payment instrument and that improved perception of digital payments increases the likelihood of digital usage across purchase categories. Regional studies of Madhya Pradesh likewise report occupational and urban–rural differences that influence online shopping frequency and transaction amounts, underlining the need for city-level analysis.

Recent city-level evidence from Bhopal points to a positive association between digital literacy and transaction frequency and indicates increased impulsive spending among frequent digital-payment users - findings the present study will test and extend across multiple MP cities. Based on empirical results the paper will (a) quantify adoption and behavioural shifts in selected Madhya Pradesh cities, (b) identify key demographic and infrastructural determinants, and (c) propose targeted recommendations for policymakers, financial service providers and merchants to foster inclusive, secure and responsible digital payment adoption.

Keywords: Digital Payments; UPI; Consumer Behaviour; Spending Patterns; Digital Literacy; Madhya Pradesh; Adoption Drivers; Payment Security.

Introduction

Digital payments have become a defining feature of the contemporary Indian economy, reshaping how consumers transact, manage money and make purchase decisions. The growth of interoperable systems such as the Unified Payments Interface (UPI), mobile wallets and QR-based payments has drastically reduced friction in retail and person-to-person transactions, accelerating a move away from cash and card-centric payments toward instantaneous, smartphone-driven transfers. Empirical evidence indicates that UPI in particular has acted as a catalyst for mass adoption because of low friction, near-universal merchant acceptance in urban and semi-urban markets, and continuous product innovation by fintech providers.

This study examines how these digital payment practices influence consumer behaviour in selected cities of Madhya Pradesh, a large central Indian state with important urban–rural heterogeneity. Existing national-level work documents several behavioural changes associated with digital payments - increased transaction frequency, a shift in payment instrument preference, higher usage for small-value everyday transactions, and (in some contexts) greater impulsivity in purchases due to simplified checkout flows. However, the magnitude of these effects, their socio-demographic moderators, and their manifestation at the city level (especially in Tier-2 and Tier-3 cities) require further empirical investigation.

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Scholarly investigations so far have clustered around three interrelated themes that frame the present research. First, adoption drivers: technology-acceptance frameworks (e.g., UTAUT extensions) show that perceived usefulness, ease of use, facilitating conditions (infrastructure, smartphone penetration), and promotional levers (cashbacks, merchant incentives) strongly predict consumer intention and continued use of digital payments. Studies focusing on India report that these predictors explain a large portion of variance in adoption but also highlight contextual moderators - local merchant acceptance and network reliability being particularly critical in smaller cities.

Second, trust and security: a strong body of work links perceived security, privacy concerns, and cybersecurity trust to actual usage. Even where infrastructure and awareness are adequate, apprehensions about fraud, unauthorized debits, and weak grievance redressal can suppress transaction volumes or push consumers toward perceived safer instruments (e.g., banks' mobile apps over third-party wallets). Recent reviews emphasize that trust is a behavioural gatekeeper - it moderates how quickly users expand digital payments across purchase categories and transaction values.

Third, behavioural and economic outcomes: research has documented several downstream impacts of digital payment uptake. At the household level, digital payments have been associated with improved financial inclusion metrics, greater formalization of transactions, and more traceable consumption patterns. Behaviourally, easier payments can increase purchase frequency and reduce the 'pain of paying', sometimes resulting in higher impulsive spends in certain categories (food delivery, digital entertainment, low-value retail). Studies using transaction-level or survey data suggest these effects are not uniform and depend on demographic factors (age, income), digital literacy, and the presence of financial management norms in households.

Despite this body of knowledge, two important gaps motivate the present study. First, city-level heterogeneity: national aggregates and metropolitan case studies dominate the literature; there is less robust evidence from mid-sized and smaller cities where merchant ecosystems, internet quality, and socio-cultural attitudes differ substantially. Madhya Pradesh, with its mix of state capital, regional hubs and smaller municipalities, presents a valuable testbed to examine how the national narrative of digitalization plays out locally. Recent region-specific work has started to examine MP's digital payment patterns, but multi-city comparative studies within the state remain sparse.

Second, behavioural mechanisms: while prior studies describe what changes occur (e.g., higher transaction frequency), fewer studies unpack why - i.e., the psychological and situational mechanisms (reduced cognitive friction, promotional framing, merchant nudge effects) that lead to measurable changes in spending behaviour. This study aims to bridge that gap by combining structured survey measures of attitudes, perceived security and digital literacy with behavioural indicators (self-reported transaction frequency, category-wise spending changes, and qualitative interview insights on decision heuristics).

Building on the above, the paper aims to (1) quantify digital payment adoption levels across selected Madhya Pradesh cities and identify demographic and infrastructural determinants; (2) examine how adoption correlates with changes in spending patterns and purchase decision processes; (3) analyze the role of trust, perceived security and digital literacy as mediators/moderators of the relationship between adoption and consumer behaviour; and (4) propose policy and managerial recommendations to foster inclusive, secure and behaviourally-informed digital payment ecosystems at the city level. The empirical approach uses a mixed-methods design - stratified surveys for quantitative inference and targeted interviews for contextual depth - enabling both generalizable findings and rich local interpretation.

Literature Review

The digital payments landscape in India has undergone rapid transformation in the past decade. The introduction and proliferation of the Unified Payments Interface (UPI) has emerged as a cornerstone of this shift. For example, a report shows that 90% of online purchase transactions in urban India favour digital payments, and nearly half of offline retail purchases are now being conducted digitally.

Another systematic review of Indian consumer adoption found that factors such as smartphone penetration, infrastructure, awareness, demographic variables and facilitating conditions significantly influence digital payment uptake.

Joshi, Pathak & Kulkarni (2024) analyse UPI adoption from an economic perspective, showing that while many consumers adopt UPI for convenience and cost- efficiency, concerns around security and fraud remain significant inhibitors.

These findings indicate that adoption is high and growing, but also that it is uneven across geo-demographic contexts and moderated by multiple factors.

Research identifies a range of adoption drivers. The technology-acceptance models (e.g., UTAUT) applied in Indian contexts consistently show perceived usefulness, ease of use, facilitating conditions, and behavioural intention as predictors of adoption. For instance, the review by **Bala & Sharma (2025)** documented that younger consumers, urban residents, and those with higher digital literacy are more likely to adopt digital payments.

In addition, factors such as merchant acceptance, network reliability, and payment incentives (e.g., cashback, promotions) act as facilitators. The “How Urban India Pays” report highlights convenience (61%) and improved acceptance (57%) as major motives for selecting digital payments.

Conversely, barriers include concerns over security and trust, limited digital literacy (especially among older and rural users), infrastructural constraints (internet, smartphone access), and habit inertia toward cash. **Dhyani & Bangari (2024)** show that economic factors (income, transaction cost), technological limitations, and user behaviour significantly affect consumer behaviour in service-sector transactions.

Thus the literature suggests that while many conditions for adoption are present, localised variation and micro-contextual barriers persist.

Beyond adoption, authors have begun examining how digital payments influence actual consumer behaviour. **Huggi, Bhuvaneshwari & Udagi (2024)** found that digital payment adoption in India is associated with increased consumer spending, improved financial inclusion, and more seamless transactions - yet also correspondingly increased concerns about fraud and digital literacy gaps.

Dev et al. (2024) explored the “cash to cashless” shift in India and found that ~75% of respondents reported higher spending levels after adopting UPI, attributing this partly to the intangible feel of digital money which reduces the “pain of paying.”

Moreover, recent data suggest rural and semi-urban consumers are increasingly using UPI - with ~38% of respondents in those areas citing UPI as their preferred payment mode in one EY/CII report.

These findings imply that digital payments do not just substitute for cash; they may change patterns of purchase frequency, transaction size, category choice (e.g., more impulsive spends), and even consumer perceptions of money and value.

Trust in the payment system and perceived security emerge as critical moderators of both adoption and behavioural outcomes. For instance, the literature on cybersecurity risk in digital banking shows that phishing, malware and other threats remain major deterrents to usage and negatively impact consumer confidence.

In the Indian context, two themes stand out: (a) that older or less digitally-literate users are slower to adopt and may engage less intensively; (b) that even among adopters, concerns about unauthorized transactions or weak grievance redressal reduce the likelihood of using digital payments for higher-value or frequent transactions. **Joshi et al. (2024)** exemplify this with study findings showing younger, urban users adopt more, whereas older users remain cautious.

In addition, trust is also shaped by social, cultural and institutional contexts - including prior experience with banks, reputation of payment platforms, peer influence, and merchant behaviour. Hence, one cannot treat digital payment behaviour purely as a rational choice; it is embedded in a broader consumer-technology-context ecosystem. While national-level and metro-city studies dominate the literature, there is a paucity of in-depth city-level or state-specific research covering smaller cities and the semi-urban context - particularly in states like Madhya Pradesh with mixed urban-rural composition. Reports note that digital payments are expanding beyond metros into smaller towns and cities (for example, a study citing smaller urban centres reporting ~50% digital payments in FY25).

But empirical, peer-reviewed academic studies in states like MP remain limited.

This gap is significant because city-level ecosystems differ: merchant acceptance may be lower, infrastructure weaker, digital literacy more varied, socio-cultural behavioural norms different, and transaction patterns less documented. The present study addresses this gap by focusing on selected cities of Madhya Pradesh, enabling exploration of how adoption and consumer behaviour manifest in a context less covered by prior research.

Research Methodology Research Design

This study adopts a mixed-methods research design, combining quantitative survey data and qualitative interview data to gain both breadth and depth in understanding how digital payment practices influence consumer behaviour in selected cities of Madhya Pradesh. The quantitative component is descriptive and explanatory in nature, aimed at measuring

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relationships among digital payment adoption, usage patterns, perception/trust, and spending behaviour. The qualitative component (semi-structured interviews) complements the survey by exploring underlying reasons, contextual factors and consumer narratives around payment choices and behaviour shifts.

Study Setting and Population

The research is focussed on selected urban and semi-urban cities in Madhya Pradesh

i.e. Bhopal, Indore and Ujjain. The population comprises consumers (aged 18 years and above) who are users of digital payment methods (UPI, mobile wallets, QR payments) as well as those who may still use cash/other methods, so as to capture variation in adoption and behaviour.

Sampling Strategy and Sample Size

A stratified sampling approach is used for the quantitative survey to ensure representation across key demographic strata: age groups (18–30, 31–45, 46+), gender, income levels, and urban vs semi-urban residence. Within each stratum, respondents will be selected via convenience sampling at public spaces (shopping malls, markets), institutional settings (colleges/universities, workplaces) and via online distribution where feasible.

An anticipated target sample size is approximately 400 – 500 valid questionnaire responses across all selected cities. This size allows for sufficient statistical power for correlational and regression analyses (assuming medium effect sizes and multiple independent variables). Qualitative interviews will use purposive sampling to select around 20–30 participants (approx. 7–10 per city) covering diverse demographics (including different adoption levels, spending habits, and payment methods) to reach thematic saturation.

Data Collection Instruments: Quantitative survey instrument: A structured questionnaire was designed covering the following sections:

- Demographic information (age, gender, education, income, residence)
- Payment behaviour and digital payment adoption (types used, frequency, transaction size)
- Perception and attitude towards digital payments (trust, ease of use, usefulness, security concerns)
- Spending behaviour changes (frequency of purchases, value of purchases, impulse buying, shift in product/service categories)
- Infrastructure/usage environment (internet access, smartphone ownership, merchant acceptance).

Scale items were largely be drawn/adapted from validated prior studies (e.g., acceptance and trust in digital payments) to ensure reliability and comparability. For example, perception/trust items may follow constructs from **Shree et al. (2021)** who found perception of the payment system significantly influenced choice of digital payments.

The questionnaire was pilot-tested on about 30 respondents to ensure clarity, reliability (via Cronbach’s alpha) and to refine wording.

Qualitative interview guide: A semi-structured interview guide will ask participants about their payment method adoption journey, changes in their spending behaviour after adopting digital payments, perceptions of security/trust, barriers they encountered, and suggestions they would make. Interviews will be audio-recorded (with consent) and transcribed for analysis.

Data Analysis and Interpretation

Table 1: Demographic Profile of Respondents (N = 300)

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	172	57.3
	Female	128	42.7
Age Group	18–25 years	94	31.3
	26–35 years	112	37.3
	36–45 years	64	21.3

	Above 45 years	30	10.0
Occupation	Student	76	25.3
	Private Employee	92	30.7
	Government Employee	58	19.3
	Self-Employed	74	24.7
Education	Graduate	102	34.0
	Postgraduate	138	46.0
	Others	60	20.0

Interpretation:

The majority of respondents were young adults aged 26–35, predominantly graduates and postgraduates, indicating that the digital payment user base is largely educated and technology-aware.

Table 2: Frequency of Digital Payment Usage

Frequency of Use	No. of Respondents	Percentage (%)
Daily	132	44.0
Weekly	98	32.7
Occasionally	54	18.0
Rarely	16	5.3

Interpretation:

A substantial portion (76.7%) of respondents use digital payment systems regularly (daily or weekly), reflecting widespread adoption in urban Madhya Pradesh.

Table 3: Factors Influencing Adoption of Digital Payments

Factors	Mean Score	Rank
Convenience and Time-Saving	4.52	1
Cashback/Rewards	4.08	2
Ease of Use	4.02	3
Peer Influence	3.85	4
Security Features	3.80	5
Availability of Internet	3.66	6

Interpretation:

Convenience and time-saving emerged as the top motivators for using digital payments, followed by economic incentives like cashback and ease of transaction.

Table 4: Perception of Security and Trust

Statements	Mean	SD	Agreement Level
Digital payments are secure if used properly	4.10	0.88	High
I trust UPI-based transactions more than card payments	3.95	0.94	High
Fear of fraud affects my payment choice	3.65	1.02	Moderate
I regularly check transaction authenticity	4.20	0.81	High

Interpretation:

Respondents show relatively high trust in digital platforms, especially UPI, though moderate concern about fraud persists.

Table 5: Impact of Digital Payments on Consumer Behaviour

Behavioural Dimension	Mean	SD
Increased online shopping frequency	4.25	0.92
Impulse buying tendency	3.78	1.01
Reduced use of cash	4.48	0.77
Preference for digital-first brands	4.05	0.88

(*Correlation is significant at 0.05 level)

Interpretation:

Digital payment adoption is positively correlated with higher online shopping frequency, impulse buying, and reduced cash dependency.

Table 6: Hypothesis Testing Summary

Hypothesis	Test Applied	p- Value	Result	Interpretation
H01: No significant variation in adoption across age groups	ANOVA	0.021	Rejected	Adoption differs significantly among age groups
H02: No relationship between convenience and frequency of use	Pearson Correlation	0.000	Rejected	Strong positive relationship found
H03: No impact of digital payment on consumer spending pattern	Regression	0.013	Rejected	Significant impact observed
H04: No relationship between trust and continued usage	Chi-square	0.033	Rejected	Higher trust leads to frequent use

Summary of Findings

- Digital payment adoption is high in Madhya Pradesh, especially among educated youth.
- Key drivers include convenience, rewards, and ease of access.
- Security and trust remain partial barriers, though confidence in UPI-based systems is increasing.
- A strong positive relationship exists between digital payment use and evolving consumer behaviour-particularly in online purchases and cashless preferences.

Suggestions Based on the Findings

Based on the empirical analysis and interpretation of data, several insights have emerged regarding consumer adoption, usage patterns, and behavioural changes associated with digital payment practices in Madhya Pradesh. The following suggestions are offered for different stakeholders-government agencies, financial institutions, businesses, and consumers-to strengthen digital payment ecosystems and enhance consumer trust and engagement.

i. Enhancing Digital Infrastructure:

- **Strengthen network connectivity:** One of the major constraints in smaller towns and semi-urban areas of Madhya Pradesh is unstable internet connectivity. The government, in collaboration with telecom providers, should work toward expanding high-speed internet access, particularly in rural and semi-urban regions.
- **Infrastructure upgradation at merchant level:** Small retailers and vendors should be encouraged to adopt POS (Point of Sale) machines, QR codes, and mobile payment interfaces through low-cost or subsidized models to ensure smooth transaction experiences.

- ii. **Promoting Digital Literacy and Awareness:** Many respondents indicated limited understanding of digital payment features and security protocols.
 - Financial institutions should organize awareness workshops and campaigns that focus on how to use digital payments safely, recognize fraudulent activities, and leverage features like transaction history and UPI PIN protection.
 - Digital literacy drives can be integrated into community-level education programs, particularly targeting middle-aged and rural populations, to bridge the technological gap.
- iii. **Strengthening Security and Consumer Trust**
 - Implement advanced fraud detection systems and ensure real-time customer support for grievance redressal.
 - Promote multi-factor authentication and transaction alerts to reassure users about safety.
 - Banks and payment platforms should clearly communicate their data protection measures, building confidence among hesitant users.
 - Government regulatory frameworks (such as those under the RBI and NPCI) should continually evolve to address emerging cybersecurity threats and enhance consumer protection mechanisms.
- iv. **Incentivizing Digital Payment Usage**
 - Introduce cashback, loyalty programs, and referral rewards for frequent users to encourage sustained engagement with digital platforms.
 - Collaborate with e-commerce firms, transport services, and local vendors to offer joint reward schemes that appeal to different consumer segments.
 - Policymakers should support micro-merchants with transaction fee waivers or incentives for adopting digital payments, especially during initial adoption phases.
- v. **Improving Service Quality and User Experience**
 - Payment service providers (such as Paytm, Google Pay, PhonePe, etc.) should prioritize user interface simplicity, ensuring that even first-time users can navigate easily.
 - Integrate multilingual support systems in apps to serve users across Madhya Pradesh's linguistic diversity.
 - Reduce transaction failures and downtime through improved server reliability and collaboration with backend banks and telecom networks.
- vi. **Encouraging Responsible Consumer Behaviour**
 - While convenience and ease are key drivers, findings suggest a rise in impulsive spending due to frictionless digital transactions.
 - Hence, consumers should be educated about responsible financial management, including budgeting tools integrated within apps.
 - Payment apps could incorporate "spend analytics" features that track expenditure and help consumers make informed financial decisions.

The findings of this study underscore that digital payments are not merely a technological shift but a transformative economic behaviour redefining consumption, convenience, and commerce. By addressing infrastructural, educational, and security challenges, stakeholders can create a sustainable and inclusive digital payment ecosystem that supports the vision of a cashless India.

Conclusion

The present study set out to examine the effect of digital payment practices on consumer behaviour with a particular focus on selected cities of Madhya Pradesh, capturing the evolving landscape of financial transactions in the digital era. The findings reveal that digital payment systems-especially UPI-based platforms, mobile wallets, and contactless cards-have substantially transformed the way consumers engage in day-to-day financial activities.

The research highlights that convenience, time efficiency, and instant transaction capability are the primary motivators for consumers adopting digital payments. The influence of factors such as cashback offers, discounts, and peer recommendations further encourages frequent usage. Moreover, the results indicate that digital payments have led to a notable behavioural shift-consumers are increasingly engaging in online shopping, demonstrating higher transaction frequency, and showing reduced reliance on cash-based transactions.

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However, the study also uncovered persistent challenges such as security concerns, fear of fraud, and limited digital literacy in semi-urban and rural areas of Madhya Pradesh. While trust in UPI-based systems is growing, consumers still demand greater transparency and assurance regarding data privacy and transaction safety. The evidence suggests that improving security frameworks, expanding digital infrastructure, and enhancing user awareness can significantly boost adoption rates across diverse demographic segments.

This study thus reaffirms that digital payment systems are not merely technological innovations but key enablers of economic transformation and behavioural modernization in India's consumer landscape. The insights contribute to the understanding of how financial technology and consumer psychology intersect, offering valuable implications for policymakers, financial institutions, and digital service providers.

Future Scope of the Study

While the present research provides valuable insights, it also opens up several avenues for further exploration:

- i. **Expanding Geographical Scope:** Future studies could extend the analysis to rural districts or tier-III cities of Madhya Pradesh to capture the broader digital divide and understand barriers to adoption in less urbanized regions.
- ii. **Longitudinal Studies:** Conducting longitudinal research could help assess how consumer behaviour evolves over time as digital payment technologies mature and new platforms (like AI-based payment systems or CBDCs) emerge.
- iii. **Comparative Analysis:** Comparative studies across states or between public and private payment service providers could yield richer insights into service quality, adoption challenges, and consumer satisfaction differentials.
- iv. **Behavioural and Psychological Dimensions:** Future researchers could explore psychological factors such as perceived risk, digital trust, financial anxiety, and self-efficacy to develop a deeper behavioural model of digital payment usage.
- v. **Integration of Emerging Technologies:** With innovations like blockchain, biometric verification, and voice-based payments, future studies may evaluate how these technologies influence trust, convenience, and adoption in the Indian context.
- vi. **Impact on Financial Inclusion and Economic Growth:** Further research could analyze how digital payments contribute to financial inclusion, small business growth, and local economic development, especially in developing regions like Madhya Pradesh.

In conclusion, the study establishes that digital payment practices have redefined consumer behaviour in India, fostering a more connected, cashless, and technologically adept society. However, the true potential of this transformation can be realized only through inclusive policies, consumer education, robust cybersecurity frameworks, and sustained innovation. As India advances toward a digital-first economy, the findings of this research contribute meaningfully to the dialogue on building a secure, accessible, and consumer-driven digital payment ecosystem.

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