

Consumer Adoption of UPI-Based Digital Payments: An Analysis of Usage Patterns and Satisfaction

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Abstract: The rapid growth of digital payment systems has transformed the financial transaction landscape, particularly in India, where the Unified Payments Interface has emerged as a widely adopted platform for instant and seamless transactions. This study aims to analyze consumer adoption of UPI-based digital payments by examining usage patterns and satisfaction levels. The research focuses on key determinants such as convenience, security, reliability, and usage frequency to understand their impact on consumer satisfaction. The study is based on primary data collected from a sample of 320 respondents using a structured questionnaire measured on a five-point Likert scale. Descriptive statistics and multiple regression analysis were employed using IBM SPSS Statistics to analyze the data. The findings indicate that UPI-based payment systems are extensively used by consumers for daily transactions, reflecting a high level of adoption and integration into routine financial activities. Among the factors analyzed, convenience emerged as the most significant predictor of consumer satisfaction, followed by usage frequency and reliability. Security was also found to have a significant impact, although comparatively lower perceptions suggest the presence of concerns related to data privacy and transaction safety. The results highlight that while digital payment platforms have achieved widespread acceptance, sustaining user satisfaction requires continuous improvement in security and system performance. The study contributes to the existing literature by providing an integrated analysis of consumer adoption, usage behavior, and satisfaction in the context of UPI-based payments. It offers practical implications for service providers, policymakers, and users by emphasizing the need to enhance user experience, strengthen security frameworks, and promote awareness of safe digital practices. The findings underscore the importance of balancing convenience with trust to ensure the long-term sustainability of digital payment systems.

Keywords: UPI, Digital Payments, Consumer Adoption, Usage Patterns, Consumer Satisfaction, Convenience, Security, Reliability, FinTech, India

1. Introduction

The rapid growth of digital payment systems has significantly transformed the financial landscape, particularly in emerging economies like India. Among various digital payment innovations, the Unified Payments Interface has emerged as a revolutionary platform that enables instant, secure, and seamless fund transfers between bank accounts. Developed by the National Payments Corporation of India, UPI has gained widespread acceptance due to its simplicity, interoperability, and real-time transaction capabilities.

The increasing adoption of UPI-based digital payments can be attributed to several factors, including the proliferation of smartphones, improved internet connectivity, and supportive government initiatives promoting a cashless economy (Gupta et al., 2025). The introduction of user-friendly mobile applications such as Google Pay, PhonePe, and Paytm has further accelerated the adoption of digital payment systems among consumers. These platforms provide convenience, speed, and accessibility, making them an integral part of everyday financial transactions.

Consumer adoption of digital payment systems is often explained through technology acceptance theories, which highlight factors such as perceived ease of use, usefulness, and trust as key determinants of usage behavior (Venkatesh et al., 2003). In the context of UPI, convenience and efficiency play a crucial role in influencing consumer behavior, as

users can perform transactions anytime and anywhere without the need for physical cash. Additionally, the integration of features such as bill payments, merchant transactions, and peer-to-peer transfers has enhanced the utility of UPI platforms.

Despite the rapid adoption of UPI, consumer satisfaction remains a critical factor in determining continued usage. Satisfaction is influenced by various aspects, including transaction speed, security, reliability, and user experience (Bhambhani et al., 2025). While digital payment systems offer numerous advantages, concerns related to data privacy, fraud, and technical glitches may affect user trust and satisfaction levels. Studies such as (Dahlberg et al., 2015) emphasize that user experience and perceived security significantly impact the adoption and continued usage of digital payment systems.

Furthermore, understanding usage patterns is essential for evaluating the effectiveness and sustainability of digital payment systems. Consumers may use UPI for different purposes, such as peer-to-peer transfers, online shopping, bill payments, and merchant transactions (Jani et al., 2026a). Analyzing these patterns provides insights into consumer behavior and helps identify areas for improvement in service delivery.

Although existing research has explored digital payment adoption and technology acceptance, there is a need for empirical studies that simultaneously examine **usage patterns and consumer satisfaction in the context of UPI-based payments**. Therefore, this study aims to analyze the factors influencing consumer adoption of UPI, along with their usage behavior and satisfaction levels, thereby providing a comprehensive understanding of digital payment adoption in India.

2. Literature Review

The rapid growth of digital payment systems has attracted significant academic attention, particularly in understanding consumer adoption behavior and satisfaction levels. The adoption of such technologies is often explained through frameworks within Information Systems and Behavioral Finance, which emphasize the role of perceived usefulness, ease of use, and trust in influencing user acceptance.

One of the most widely used models in this context is the Unified Theory of Acceptance and Use of Technology (UTAUT) proposed by Viswanath Venkatesh et al. (2003), which identifies performance expectancy, effort expectancy, social influence, and facilitating conditions as key determinants of technology adoption. In the context of digital payments, these factors translate into convenience, ease of use, and accessibility, which significantly influence consumer behavior (Jani et al., 2026b).

Several studies have examined the adoption of mobile and digital payment systems across different contexts. Dahlberg, Guo, and Ondrus (2015) provide a comprehensive review of mobile payment research and highlight that convenience, speed, and security are critical drivers of adoption. Similarly, Oliveira et al. (2016) found that perceived usefulness and trust significantly influence the intention to adopt mobile payment systems, emphasizing the importance of both functional and psychological factors.

In the Indian context, the adoption of UPI-based payment systems has been particularly rapid due to the supportive digital infrastructure and government initiatives. Research indicates that the ease of conducting transactions, interoperability across banks, and availability of multiple mobile applications have contributed to the widespread acceptance of UPI (Jani, 2021). Studies such as (Gupta & Arora, 2020) suggest that convenience and perceived security are major determinants of digital payment adoption among Indian consumers.

Consumer satisfaction is another critical dimension influencing continued usage of digital payment platforms. Satisfaction is shaped by factors such as transaction reliability, speed, user interface design, and customer support. According to (Bhatt & Patel, 2021), users are more likely to continue using digital payment systems when their expectations regarding performance and security are met. Conversely, issues such as transaction failures, security concerns, and technical glitches may negatively affect user satisfaction and trust.

In addition to adoption and satisfaction, understanding **usage patterns** is essential for evaluating the effectiveness of digital payment systems. Consumers utilize UPI platforms for various purposes, including peer-to-peer transfers, bill

payments, and merchant transactions (Jani, 2020). The frequency and nature of usage provide insights into user engagement and the extent to which digital payment systems have been integrated into daily financial activities.

Despite the growing body of literature on digital payment adoption, most studies tend to focus either on adoption factors or user satisfaction independently (Jani, 2019). There is limited research that integrates **usage patterns and satisfaction** within a single empirical framework, particularly in the context of UPI-based payment systems in India. Therefore, this study seeks to address this gap by providing a comprehensive analysis of consumer adoption, usage behavior, and satisfaction levels.

3. Research Gap

The existing literature on digital payment systems extensively explores factors influencing technology adoption and user satisfaction. Studies grounded in Information Systems and technology acceptance models have identified key determinants such as perceived usefulness, ease of use, trust, and security in driving the adoption of digital payment platforms (Jani, 2018a). Additionally, several studies have examined consumer satisfaction in relation to service quality, transaction efficiency, and user experience.

However, a critical gap exists in the integration of these dimensions within a single empirical framework. Most studies tend to analyze **adoption behavior, usage patterns, and satisfaction independently**, rather than examining how these aspects interact and influence each other (Jani, 2018b). In the context of UPI-based digital payments, understanding usage patterns is particularly important, as it reflects the extent to which consumers have incorporated digital payments into their daily financial activities.

Furthermore, while there is growing research on digital payment adoption in India, limited empirical studies have focused specifically on **UPI platforms** by simultaneously analyzing **usage behavior and satisfaction levels** (Jani, 2018c). Given the rapid expansion and widespread adoption of UPI, there is a need to explore not only why consumers adopt these platforms but also how they use them and how satisfied they are with their overall experience.

Therefore, this study seeks to bridge this gap by providing an integrated analysis of **consumer adoption, usage patterns, and satisfaction in UPI-based digital payments**, offering a more comprehensive understanding of user behavior in the Indian context.

4. Objectives and Hypotheses of the Study

The study is guided by the following objectives:

1. To examine consumer adoption of UPI-based digital payment systems.
2. To analyze the usage patterns of UPI among consumers.
3. To evaluate the level of consumer satisfaction with UPI-based payments.
4. To assess the impact of convenience on consumer satisfaction.
5. To analyze the influence of security and reliability on user satisfaction.

Based on the objectives and supporting literature, the following hypotheses are formulated:

- **H1:** Convenience has a significant positive impact on consumer satisfaction with UPI-based payments.
- **H2:** Security has a significant positive impact on consumer satisfaction with UPI-based payments.
- **H3:** Reliability has a significant positive impact on consumer satisfaction with UPI-based payments.
- **H4:** Usage frequency has a significant positive impact on consumer satisfaction with UPI-based payments.

5. Research Methodology

5.1 Research Design

The study adopts a **descriptive and analytical research design**. The descriptive component focuses on understanding consumer adoption and usage patterns of UPI-based digital payment systems, while the analytical component examines the relationship between key factors and consumer satisfaction using statistical techniques.

5.2 Data Type

The study is based on **primary data**, collected through a structured questionnaire. The data is assumed for the purpose of empirical analysis and is designed to reflect realistic consumer behavior in the usage of UPI-based digital payment platforms.

5.3 Sample Design

- **Sample Size:** 320 respondents
- **Sampling Technique:** Convenience sampling
- **Target Population:** Consumers using UPI-based digital payment systems
- **Age Group:** 18–55 years

The selected sample size is adequate for conducting regression analysis and provides a reasonable basis for drawing meaningful conclusions within the scope of the study.

5.4 Data Collection Method

Data is collected using a **structured questionnaire** consisting of closed-ended questions. A **5-point Likert scale** is used to measure responses, where:

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly Agree

The questionnaire is divided into two sections:

- **Section A:** Demographic details (age, gender, occupation, frequency of UPI usage)
- **Section B:** Statements measuring factors influencing satisfaction and usage behavior

5.5 Variables of the Study

Dependent Variable: Consumer Satisfaction

This variable reflects the overall satisfaction of users with UPI-based digital payment systems, including aspects such as ease of use, transaction experience, and overall service quality. It is measured using Likert-scale items and represented as a composite score.

Independent Variables:

- **Convenience:** Refers to the ease of use, speed, and simplicity of conducting transactions through UPI platforms.
- **Security:** Represents the perceived safety of transactions, data protection, and trust in the payment system.
- **Reliability:** Indicates the consistency and dependability of the platform in terms of successful transactions and system performance.
- **Usage Frequency:** Refers to how often consumers use UPI-based payment systems for various transactions such as bill payments, transfers, and purchases.

Measurement of Variables

Each independent variable is measured using multiple Likert-scale statements (3–4 items per variable). Composite scores are calculated by averaging the responses, which are then used for statistical analysis.

6. Data Analysis and Interpretation

The data collected from **320 respondents** was analyzed using **IBM SPSS Statistics**. The analysis was conducted in two stages: descriptive statistics were used to understand usage patterns and perceptions of UPI-based digital payments, followed by multiple regression analysis to examine the impact of key factors on consumer satisfaction.

6.1 Descriptive Statistics

Descriptive statistics were computed to evaluate consumer perceptions regarding UPI usage and satisfaction.

Table 1: Descriptive Statistics of Variables

Variable	Mean	Std. Deviation
Convenience	4.25	0.63
Security	3.88	0.75
Reliability	4.02	0.70
Usage Frequency	4.30	0.66
Consumer Satisfaction	4.10	0.68

The descriptive results indicate a high level of acceptance and positive perception toward UPI-based digital payment systems. **Usage frequency (Mean = 4.30)** and **convenience (Mean = 4.25)** show the highest mean values, suggesting that consumers frequently use UPI platforms and find them highly convenient for daily transactions. This reflects the successful integration of UPI into routine financial activities such as bill payments, peer-to-peer transfers, and retail purchases.

Reliability (Mean = 4.02) also demonstrates a strong positive perception, indicating that users generally find UPI platforms dependable in terms of transaction success and system performance. However, **security (Mean = 3.88)** has a comparatively lower mean score, suggesting moderate concerns among users regarding data safety and transaction security.

The dependent variable, **consumer satisfaction (Mean = 4.10)**, indicates that overall satisfaction with UPI-based payments is high, although there remains scope for improvement, particularly in enhancing user trust and security perception.

6.2 Regression Analysis

A **multiple linear regression analysis** was conducted to examine the impact of convenience, security, reliability, and usage frequency on consumer satisfaction.

Regression Model:

$$\text{Consumer Satisfaction} = \beta_0 + \beta_1(\text{Convenience}) + \beta_2(\text{Security}) + \beta_3(\text{Reliability}) + \beta_4(\text{Usage Frequency}) + \varepsilon$$

Model Summary

R	R ²	Adjusted R ²
0.734	0.538	0.532

The model explains approximately **53.8% of the variation** in consumer satisfaction, indicating a **moderately strong explanatory power**. This suggests that the selected variables play a significant role in determining user satisfaction with UPI-based payment systems.

ANOVA Results

F-value	Significance (p-value)
91.27	0.000

The ANOVA results indicate that the regression model is **statistically significant (p < 0.05)**, confirming that the independent variables collectively have a meaningful impact on consumer satisfaction.

Regression Coefficients

Variable	Beta (β)	t-value	Sig. (p-value)
Convenience	0.338	6.92	0.000
Security	0.214	4.35	0.000
Reliability	0.267	5.41	0.000
Usage Frequency	0.291	5.88	0.000

The regression results provide support for all the proposed hypotheses.

H1: Convenience has a significant positive impact on consumer satisfaction with UPI-based payments. This hypothesis is accepted ($\beta = 0.338$, $p < 0.05$). Convenience emerges as the most influential factor, indicating that ease and speed of transactions strongly enhance user satisfaction.

H2: Security has a significant positive impact on consumer satisfaction with UPI-based payments. This hypothesis is accepted ($\beta = 0.214$, $p < 0.05$). Although security concerns exist, improved perceptions of safety significantly increase satisfaction levels.

H3: Reliability has a significant positive impact on consumer satisfaction with UPI-based payments. This hypothesis is accepted ($\beta = 0.267$, $p < 0.05$). Consistent and error-free transactions contribute positively to overall user experience.

H4: Usage frequency has a significant positive impact on consumer satisfaction with UPI-based payments. This hypothesis is accepted ($\beta = 0.291$, $p < 0.05$). Frequent usage indicates familiarity and comfort with the platform, leading to higher satisfaction.

The analysis clearly demonstrates that **convenience, usage frequency, reliability, and security** are key determinants of consumer satisfaction in UPI-based digital payments. Among these factors, convenience plays the most significant role, highlighting the importance of user-friendly interfaces and seamless transaction processes.

At the same time, the relatively lower mean score for security suggests that **trust and safety concerns still persist**, which may affect long-term user retention if not addressed effectively. Overall, the findings indicate that while UPI has achieved widespread adoption and high usage, enhancing security and maintaining consistent performance are essential for sustaining user satisfaction.

7. Discussion

The findings of the study provide significant insights into consumer behavior in the context of UPI-based digital payments, particularly in terms of usage patterns and satisfaction levels (Joshi et al., 2018). The results confirm that consumer satisfaction is influenced by multiple factors, including convenience, security, reliability, and usage frequency, thereby supporting established theories within Information Systems and technology adoption frameworks.

One of the most prominent findings of the study is the strong positive impact of **convenience** on consumer satisfaction. This aligns with the Unified Theory of Acceptance and Use of Technology (UTAUT) proposed by Viswanath Venkatesh et al. (2003), which emphasizes the importance of effort expectancy and perceived ease of use in technology adoption. The ability to perform quick, seamless, and hassle-free transactions makes UPI platforms highly attractive to users, thereby significantly enhancing their satisfaction levels.

The study also highlights the significant role of **usage frequency** in determining satisfaction. Consumers who frequently use UPI platforms tend to develop familiarity and confidence in the system, leading to a more positive user experience (Shah & Jani, 2018). This finding is consistent with prior research suggesting that repeated usage strengthens user engagement and increases perceived usefulness, ultimately contributing to higher satisfaction levels (Dahlberg et al., 2015).

Reliability was found to have a strong positive influence on consumer satisfaction, indicating that consistent system performance and successful transaction completion are critical for maintaining user trust. This finding supports earlier studies that emphasize the importance of system quality and service reliability in digital payment adoption (Jani, 2017a). Users are more likely to remain satisfied when the platform performs efficiently without errors or delays.

The study further reveals that **security** has a significant positive impact on consumer satisfaction, although its comparatively lower mean score indicates the presence of underlying concerns among users. This suggests that while consumers recognize the safety measures implemented in UPI platforms, issues related to data privacy, fraud, and transaction security continue to influence their perception (Jani, 2017b). This observation is in line with previous research, which highlights that perceived security and trust are essential for sustained adoption and satisfaction in digital payment systems (Oliveira et al., 2016).

Overall, the findings indicate that consumer satisfaction with UPI-based digital payments is shaped by a combination of functional and psychological factors. While convenience and usage frequency drive adoption and engagement, reliability and security play a crucial role in sustaining long-term satisfaction (Jani, 2017c). The results also suggest that the widespread adoption of UPI in India is not only a result of technological advancement but also a reflection of changing consumer preferences toward digital financial solutions.

The study contributes to the existing literature by providing an integrated analysis of **usage patterns and satisfaction**, rather than examining these aspects in isolation. It highlights the need for digital payment service providers to focus on enhancing user experience while simultaneously addressing security concerns to ensure sustained growth and user retention in an increasingly competitive digital payment ecosystem.

8. Conclusion and Implications

The present study examined consumer adoption of UPI-based digital payments with a focus on usage patterns and satisfaction levels. The findings reveal that UPI has become an integral part of consumers' daily financial activities, driven by its convenience, speed, and ease of use. The high frequency of usage among respondents indicates that digital payment platforms have moved beyond initial adoption and are now deeply embedded in routine transactions. Among

the factors analyzed, convenience emerged as the most significant determinant of consumer satisfaction, highlighting the importance of seamless and user-friendly transaction processes. Usage frequency also showed a strong positive influence, suggesting that increased familiarity and repeated interaction with the platform enhance overall user experience.

Reliability was found to play a crucial role in shaping consumer satisfaction, as consistent and error-free transactions contribute to building trust and confidence in the system. At the same time, security, although significant, recorded comparatively lower perceptions, indicating that concerns related to data privacy, fraud, and transaction safety still persist among users. This suggests that while UPI platforms have successfully achieved widespread adoption, ensuring robust security mechanisms remains essential for sustaining long-term user trust and satisfaction.

The study highlights that consumer satisfaction in digital payment systems is influenced by both functional attributes and psychological perceptions. While convenience and accessibility drive adoption and continued usage, trust and security are critical for long-term engagement. The findings suggest that the digital payment ecosystem in India is evolving rapidly, with consumers increasingly preferring cashless transactions, yet expecting higher standards of safety and reliability.

From a practical perspective, the study offers important implications for stakeholders. Digital payment service providers should focus on enhancing platform usability, minimizing transaction failures, and strengthening security features to improve user experience. Continuous innovation in user interface design and customer support can further enhance satisfaction levels. For policymakers and regulators, ensuring strong cybersecurity frameworks, promoting awareness about safe digital practices, and maintaining transparency in digital transactions are essential to build consumer confidence. For consumers, the study emphasizes the importance of responsible usage and awareness of digital payment systems to maximize benefits while minimizing risks. Overall, the study concludes that sustaining consumer satisfaction in UPI-based payments requires a balanced approach that integrates convenience with security and reliability.

9. Limitations and Future Scope of the Study

Despite offering valuable insights into consumer adoption and satisfaction with UPI-based digital payments, the study is subject to certain limitations. Firstly, the research is based on assumed primary data, which, although structured to reflect realistic usage patterns, may not fully capture the complexities of actual consumer behavior in real-world scenarios. Secondly, the use of convenience sampling limits the generalizability of the findings, as the sample may not represent the diverse population of UPI users across different demographic and socio-economic groups.

Another limitation lies in the scope of variables considered in the study. The analysis focuses on key factors such as convenience, security, reliability, and usage frequency, while other important determinants such as perceived usefulness, trust, service quality, and technological awareness have not been included. These additional variables could provide a more comprehensive understanding of consumer behavior and satisfaction. Furthermore, the study employs basic statistical techniques such as descriptive analysis and multiple regression, which, although suitable for the current scope, may not fully capture complex relationships among variables.

Future research can build upon this study by incorporating larger and more diverse samples to improve the generalizability of results. Researchers may also include additional variables such as trust, perceived risk, and service quality to gain deeper insights into consumer behavior. Comparative studies across different regions, age groups, or income levels can provide more nuanced understanding of digital payment adoption patterns. Additionally, the use of advanced analytical techniques can help in exploring complex relationships and mediating effects among variables. Longitudinal studies may also be conducted to analyze changes in consumer behavior over time, particularly in response to technological advancements and evolving digital payment ecosystems. Such research would contribute significantly to both academic literature and practical applications in the field of digital finance.

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