International Journal of Commerce and Management Research
www.managejournal.com
ISSN: 2455-1627
Received: 05-12-2025, Accepted: 04-01-2026, Published: 19-01-2026
Volume 12, Issue 1, 2026, Page No. 32-36

The evolution of digital payments: Examining user preferences for UPI apps

Dr. Pinki Rani Dei
Assistant Professor of Commerce, Government Science Degree College, Chatrapur, Ganjam, Odisha, India

Abstract
UPI has become a widely accepted and preferred payment method since its inception in India in 2016. UPI is an advanced payment system that offers greater ease of use for consumers and high security, and it has shown greater adoption among consumers. In 2008, demonetization and, subsequently, COVID-19 led to increased use of online and digital payment methods. The availability of high-speed, uninterrupted internet further facilitates the adoption of UPI in both urban and rural areas. According to studies, India's digital payments volume has increased at an average annual rate of approximately 50 percent over the last five years. This study aims to examine the factors influencing customer preferences for UPI apps. This study was conducted in the Kalol and Gandhinagar districts of Gujarat. A Simple Random sampling method was used to select 203 respondents for the study. The influence of various factors, such as convenience, popularity, safety, and ease of access, was analysed to determine customer preferences for UPIs. Tests such as ANOVA and t-tests were used for analysis. The results indicate that customers hold a favourable opinion of the unified payment interface. The use of UPI services is positively correlated with respondents' education level. Customers prefer UPI apps that offer greater safety and trustworthiness over convenience, popularity, and other features such as cash back and rewards.

Keywords: UPI, customer preferences, digital payments

Introduction

UPI, operated by NPCI (National Payments Corporation of India), recently set a new milestone, recording 10.5 billion transactions in August 2023, more than double the August 2021 figure of around 3.5 billion. This payment method has almost tripled in 2 years, with major players in the segment - PhonePe, Google Pay, and Paytm - according to a Times of India article dated September 1, 2023. These figures indicate that India is moving toward a cashless economy by reducing cash use. A country's payment system is fundamental to the functioning of financial markets. Payment system expenses are estimated to account for 2%-3% of GDP. This cost can be markedly reduced by replacing the paper-based payment system with an electronic one. It can be further reduced by adopting a digital payment system, which also promotes transparency. India's expedition toward a cashless economy was significantly influenced by demonetization and COVID-19. The former laid the groundwork for digital payments, while the latter became the primary driver of the digital payment ecosystem. The introduction of the Unified Payment Interface (UPI) led to a shift from traditional payment methods to electronic options, including debit and credit cards, internet banking, and mobile payment technologies.

To tap into this expanding market segment, companies are introducing additional features to increase their share. As reported in a Business Line article on September 12, 2023, Hitachi Payment Services launched the country's first UPI-based ATM in collaboration with NPCI, enabling customers to withdraw cash without using a debit or credit card. The RBI aims to create a simple, secure, and efficient platform for digital transactions to support a thriving digital economy. UPI, with its reliable security features, integrated banking options, seamless merchant payments, fund routing, and additional functionalities such as in-app payments, cross-screen QR codes, web payments, and UnionPay-enabled e-wallets, aligns with the RBI's vision for a robust payments infrastructure. To further encourage UPI adoption, the RBI now permits banks to offer a credit line service to UPI users, allowing customers to access pre-approved credit and repay later.

Literature Review

Customer preferences refer to the tendency of customers to choose (Howard & Sheth, 1969). Customers form preferences based on certain factors and choose products that possess those attributes. In a 2009 study, Franke and his co-workers stated that customized products designed according to customer preferences are more likely to be accepted in the market. It can be inferred that it is always beneficial to identify customer preferences in a particular area or region. This can be achieved through market research, including surveys. Customers' preferences depend on various factors. Customers prefer cardless cash for its utility rather than for perceived ease of use, customer trust, or perceived security (Bindu K. Nambiyar & Kartikeya Bolar, 2023). Hence, the paper indicates that UPI apps are more useful than cards. Many studies have examined the significant factors that shape customer preferences for UPI.

Digital payments are more convenient and time-efficient than traditional cash methods. They offer faster transactions, around-the-clock accessibility, and often provide discounts and cashback. Convenience is a significant factor in selecting a payment method, alongside availability and perceived benefits. A 2020 study explored safety, privacy, peer influence, offers, benefits, convenience, and availability. Safety and security involve protecting sensitive data, preventing misuse, and ensuring the integrity of transactions. Peer influence refers to the impact of peers on app use or insistence. Convenience refers to the ease of completing a transaction and installing the app. The study found that 52% of non-users cited safety and security as the main reason for not adopting UPI (Garima Agarwal & Ari Vaish, 2020). In 2012, another study showed that customer

preferences are affected by gender, age, income, family size, and marital status. N. Bharath's 2023 research in Chennai examined factors like cost, security, speed, convenience, discounts, and offers in relation to UPI preferences. He found that most users employ UPI for payments but are unaware of its full capabilities. No significant differences were observed across variables such as age, gender, education, income, occupation, or number of accounts. Factors such as ease of use, service fees, loyalty, and convenience significantly influence choices; over half of respondents considered these factors crucial. However, 49% of participants expressed privacy concerns. A 2017 study by Chian-Son Yu, involving 441 respondents, indicated that perceived financial cost, credibility, social influence, and performance expectancy strongly affect mobile banking adoption. The influence of performance expectancy and financial cost varies by gender, while perceived self-efficacy and facilitating conditions are moderated by age. Another 2017 study noted that, in addition to education, demographic factors have a limited impact on the adoption of digital payments. Additionally, a 2018 study on Indian youth's e-wallet use found that they primarily use e-wallets for mobile recharges and ticket bookings due to convenience. Incentives such as freebies, cashback, discounts, and loyalty points also motivate young users to adopt digital payments.

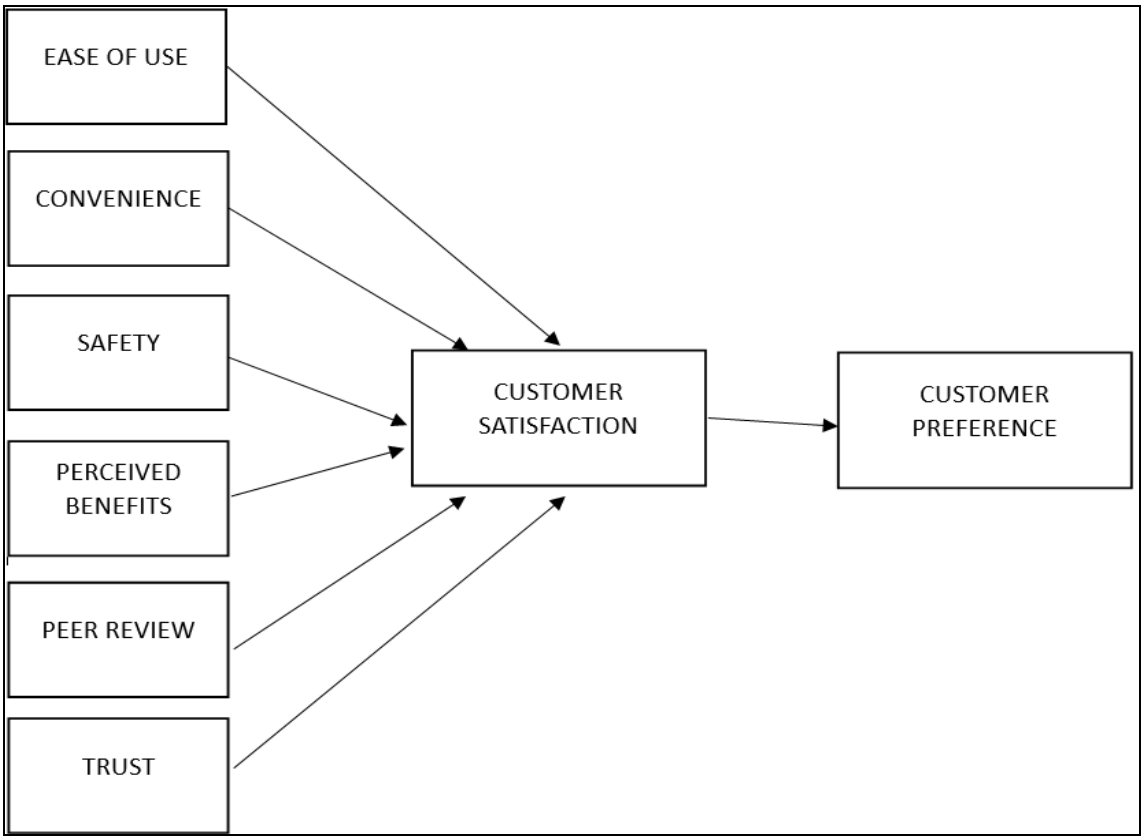

Fig 1: Conceptual Framework

Based on the above literature review, the conceptual framework depicts the relationships among the variables, indicating that these factors drive customer satisfaction, which, in turn, directly influences customer preference.

Research Methodology

This study aims to identify the factors that primarily shape customers' preferences for UPI payment methods. For the study variables such as safety and security, convenience and ease of use, peer review, brand image, and popularity of the app, offers and discounts, loyalty programs, and familiarity and trust in the banking ecosystem were considered to determine customer preferences for UPI apps. A structured questionnaire was distributed to 225 respondents in Kalol and Gandhinagar; only 203 were usable, as the remainder were incomplete and unreliable. Demographic factors such as age, Income, Education, Gender, Occupation, and Number of bank accounts were treated as independent variables. The dimensions such as mode of payment, Purposes for UPI usage, perceived speed, Compatibility of the application and OS, External threats, perceived benefits, internet accessibility, competitive advantage over other apps, and customer satisfaction were treated as dependent variables. A five-point Likert scale was used to measure responses. The survey was conducted in the Gandhinagar and Kalol regions of Gujarat. The samples were selected using simple random sampling, and a descriptive Research design was employed. The duration of the research was 75 days. T-tests, ANOVA, and correlation were used in this study to analyze the collected data.

Data Analysis

Demographic factors play a significant role in determining customer preferences in a particular region. This study aims to identify customer preferences for UPI using demographic factors such as age, gender, family type, education, occupation, and income. It is essential to analyze these demographic variables to understand customer preferences better.

Table 1: Descriptive Statistics of demographic variables

Demographic Variables		Frequency	Percent
Gender	Male	112	55.2
	Female	91	44.8
Age	18-25	79	38.9
	26-35	74	36.5
	36-45	29	14.3
	46 and above	21	10.3
Education	10th/12th	40	19.7
	Graduate	94	46.3
	Post Graduate	69	34
Occupation	Private employee	87	42.9
	Govt. Employee	42	20.7
	Self employed	50	24.6
	Student	24	11.8
Employment Sector	IT/technology	26	14.1
	Finance/banking	41	22.2
	Healthcare	39	16.15
	Education	39	16.15
	Retail	58	31.4
Type of family	Joint Family	95	46.8
	Nuclear Family	108	53.2
Income level (monthly)	under 20000	54	30.7
	20000-40000	74	42
	40000 and above	48	27.3
No. of bank Account	1	68	33.5
	3-Feb	99	48.8
	4 and above	36	17.7

Table 2: P-values for comparison of means

Dimensions/ Demographic factors	Mode of Payment	Purposes for UPI usage	Perceived speed	Compatibility of application & OS	External threats	Perceived benefits	Internet accessibility	Competitive advantage over other apps	Customer satisfaction
Gender	<.001	<.001	<.001	<.001	.001	<.001	.005	<.001	<.001
Age	<.001	.496	.268	.126	.561	.580	.179	.393	.108
Education	.051	.817	.986	.860	.808	.966	.476	.542	.818
Occupation	<.001	.032	.010	.008	.007	<.001	.011	<.001	<.001
Employment sector	.589	.230	.007	.257	.014	.077	.425	.123	.201
Monthly Income	<.001	.048	.620	.319	.497	.888	.851	.893	.590
No. of bank account	<.001	<.001	<.001	<.001	<.001	<.001	.002	<.001	<.001
Family type	.148	.677	.684	.285	.257	.534	.659	.207	.140

The analysis indicates a significant difference between males and females across all dependent variables. In the t-test, the p-values for all gender-related variables are <0.05, indicating a significant difference in mean values between genders. Hence, the null hypothesis is rejected in all these cases. This indicates that gender is strongly associated with all aspects of UPI examined. The study found that males use UPI apps more for fund transfers; they prefer UPIs that are better suited for bill payments and that facilitate purchase transactions. A significant difference is observed between males and females in transaction speed. Male respondents strongly prefer a UPI app that offers high transaction speed and is available in multiple languages. Additionally, they preferred an app compatible with multiple bank accounts that met respondents' needs.

The p-value for the age effect on the mode of payment is less than 0.05, indicating a significant difference in mean values across age groups. No significant difference is observed across education levels, as the p-value exceeds 0.05; hence, the null hypothesis is accepted. The study demonstrated that respondents aged 18-25 prefer Net Banking and e-wallets to credit or debit cards, whereas respondents aged 36-45 prefer credit cards. Respondents aged 46 and above showed the same preference for net banking and E-wallets. The 26-35 age group is more concerned with technical errors than with internet accessibility.

For Occupation, a significant difference in mean values is observed across occupations, as the p-value is less than 0.05 in all comparisons; hence, the null hypothesis is rejected. According to the study, private employees are more concerned about data leaks or sharing, theft, or loss. Private employees prefer a UPI app that refunds funds more quickly than other apps in the event of a transaction error. Private employees prefer an app with good internet access, positive reviews, and brand popularity, whereas students are more concerned with technical errors. They prefer an app with fewer technical errors.

Again, a significant difference was observed across employment sectors in perceived speed and external threats ($P < 0.05$), indicating that the null hypothesis is rejected. P-values for the mode of payment and the purposes of UPI use by monthly income level are below 0.05, indicating significant differences in means across monthly income levels.

As with other variables, the P-value for the number of bank accounts is below 0.05, indicating a significant difference in the mean number of bank accounts. This means that the null hypothesis is rejected in all these cases. It can be observed that respondents with more bank accounts prefer UPI for payments such as bill payments, shopping, movie ticket booking, and other purposes, whereas respondents with one account and more than four accounts use UPI equally for mobile recharge. For the family types, the p-value exceeds 0.05, indicating no significant difference; hence, the null hypothesis is accepted.

Respondents with an income level of 20,000–40,000 prefer a UPI App that offers incentives such as cashback and vouchers compared with other income groups. Respondents with an income below 20,000 prefer UPI apps with good internet access and strong internet reviews and brand popularity, compared with other income levels. Respondents with incomes exceeding 40,000 prefer UPI for fund transfers and want an app that enables easy purchase transactions.

Table 3: Correlation Coefficient

			Frequency of use	Ease of Use	Convenience	Safety	Perceived Benefits	Peer Reviews	Trust	Customer Satisfaction
Spearman's rho	Frequency of Use	Correlation Coefficient	1.000	.404**	.357**	.328**	.279**	.296**	.220**	.360**
		Sig. (2-tailed)		0.000	0.000	0.000	0.000	0.000	0.002	0.000
		N	203	203	203	203	203	203	203	203
	Ease of use	Correlation Coefficient	.404**	1.000	.816**	.712**	.631**	.690**	.659**	.788**
		Sig. (2-tailed)	0.000		0.000	0.000	0.000	0.000	0.000	0.000
		N	203	203	203	203	203	203	203	203
	Convenience	Correlation Coefficient	.357**	.816**	1.000	.790**	.717**	.741**	.680**	.797**
		Sig. (2-tailed)	0.000	0.000		0.000	0.000	0.000	0.000	0.000
		N	203	203	203	203	203	203	203	203
	Safety	Correlation Coefficient	.328**	.712**	.790**	1.000	.758**	.782**	.678**	.715**
		Sig. (2-tailed)	0.000	0.000	0.000		0.000	0.000	0.000	0.000
		N	203	203	203	203	203	203	203	203
	Perceived Benefits	Correlation Coefficient	.279**	.631**	.717**	.758**	1.000	.801**	.654**	.816**
		Sig. (2-tailed)	0.000	0.000	0.000	0.000		0.000	0.000	0.000
		N	203	203	203	203	203	203	203	203
	Peer Reviews	Correlation Coefficient	.296**	.690**	.741**	.782**	.801**	1.000	.787**	.791**
		Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000		0.000	0.000
		N	203	203	203	203	203	203	203	203
	Trust	Correlation Coefficient	.220**	.659**	.680**	.678**	.654**	.787**	1.000	.768**
		Sig. (2-tailed)	0.002	0.000	0.000	0.000	0.000	0.000		0.000
		N	203	203	203	203	203	203	203	203
	Customer Satisfaction	Correlation Coefficient	.360**	.788**	.797**	.715**	.816**	.791**	.768**	1.000
		Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
		N	203	203	203	203	203	203	203	203

Frequency of use appears to be positively correlated with all factors, and all correlations are statistically significant ($p < 0.05$). It has moderate relationship with ease of use (rho value =0.404), Convenience (rho value = 0.357), Safety (rho value = 0.328) and Customer Satisfaction (rho value = 0.360), moderate to weak relationship with perceived benefits (rho value = 0.279), peer reviews (rho value = 0.296), trust (rho value = 0.220).

Ease of use is positively correlated with all factors, and all correlations are statistically significant ($p < 0.05$). The factor has a strong relation with convenience (rho value = 0.816), safety (rho value = 0.712), and customer satisfaction (rho value = 0.788), and moderate to strong correlation with perceived benefits (rho value = 0.631), peer reviews (rho value = 0.690), and trust (rho value = 0.659).

Convenience also shows positive correlations with all factors, all of which are statistically significant ($p < 0.05$). The factor shows a strong correlation with safety (rho = 0.790), perceived benefits (rho = 0.717), customer satisfaction and peer reviews (rho = 0.741), and a moderate-to-strong relationship with trust (rho = 0.680).

Safety is positively correlated with all factors, with all correlations statistically significant ($p < 0.05$). It demonstrates strong relationships with perceived benefits (rho = 0.758), peer reviews (rho = 0.782), and customer satisfaction (rho = 0.715), and a moderate-to-strong correlation with trust (rho = 0.678).

Perceived Benefits shows positive correlations with all factors, and all correlations are statistically significant ($p < 0.05$). The factor demonstrates strong correlation (rho value = 0.801) with peer reviews (rho value = 0.801) and customer satisfaction (rho value = 0.816) and moderate to strong correlation with trust (rho value = 0.654).

Peer Reviews demonstrates positive correlations with all factors, and all correlations are statistically significant ($p < 0.05$). It reflects a strong correlation with trust (rho = 0.787)

and customer satisfaction (rho = 0.791). Trust is positively and statistically significantly correlated with all factors ($p < 0.05$). It reflects a strong correlation with Customer Satisfaction (rho value = 0.768). Customer satisfaction has a strong, positive, and statistically significant correlation with all factors included in the study, except frequency of use, which shows a moderate-to-weak relationship.

Results and Discussion

The study demonstrates that customers prefer a UPI app that is easy to install and convenient to use; it must be safe and secure with respect to data sharing and financial loss, and it must have fast transaction speeds. It also shows that gender and occupation differ in preferences for payment modes, purposes, speed, compatibility, threat, and trust. The study also reflects a strong positive correlation among all factors examined, but a weak correlation with frequency of use. This provides scope for further study, as both variables must exhibit a strong correlation. The payment system in India has evolved from barter to the use of currency, cards, and digital payment methods. Security is a crucial element in the implementation of UPI payments, as it is the top concern for consumers. In India, cash remains of significant importance. Despite the rapid growth of digital payment methods, awareness of security, data privacy, and related concerns remains limited. This leads them to prefer using cash or cards over UPI. The results indicate that customers hold a favorable opinion of unified payment interface (UPI) services, and UPI service use is positively correlated with respondents' education level. Individuals with higher education are more likely to use UPI systems. The expansion of smartphone adoption and greater internet accessibility in the region have also made UPI services more widely available. However, users encounter installation difficulties, particularly among older adults, which may be due to technical issues. The government should conduct campaigns to educate internet and banking users about UPI services, especially in rural regions, to bring rural people into the financial mainstream. According to the study, most respondents use Phone Pay rather than G Pay or Paytm. The literature review also supports this outcome. By addressing the factors examined in the study, UPI app providers can position themselves for sustained growth in the dynamic digital payment landscape.

References

1. Dezan Shira and Associates Growth of Digital Payment Systems in India, 2017. http://www.india-briefing.com/news/growth-of-digital-payments-systems-in-india-14797.html/.
2. Watal R. Digital payments surge 55% in 2016-17, 2017. http://www.livemint.com/Industry/hF8D3D6bWBie6IoJzWtdZO/Digital-payments-surge-55-in-FY17-Niti-Aayog.html
3. Pratik B. Demonetization effect: Digital payments India's new currency; debit card transactions surge to over 1 billion, 2017. http://economictimes.indiatimes.com/industry/banking/finance/banking/digital-payments-indias-new-currency-debit-card-transactions-surge-to-over-1-billion/articleshow/58863652.cms
4. Bamasak O. Exploring consumers' acceptance of mobile payments: an empirical Study. International Journal of Information Technology, Communications and Convergence,2011:1:173-185.
5. Dahlberg T, Mallat N, Oorni A. Consumer Acceptance of Mobile Payment Solutions-Ease of Use, Usefulness and Trust. The Second International Conference on Mobile Business, Vienna, Austria, 2003, 17-25.
6. Doan N. Consumer adoption in mobile wallet: a study of consumers in Finland, 2014. http://theseus.fi/bitstream/handle/10024/86343/Ngoc_Doan.pdf?sequence=1.
7. Dahlberg T, Mallat N, Ondrus J, Zmijewska A. Past, present and future of mobile payments research: A literature review. Electronic Commerce Research and Applications,2008:7:165-181.
8. Wamuyu PK. The role of contextual factors in the uptake and continuance of Mobile money usage in Kenya. The Electronic Journal of Information Systems in Developing Countries, 2014.
9. Soman D. Effects of payment mechanism on spending behavior: the role of rehearsal and immediacy of payments. Journal of Consumer Research,2001:27:460-474.
10. Soman D. The effect of payment transparency on consumption: quasi-experiments from the field. Marketing Letters,2003:14:173-183.
11. Srivastava J, Raghubir P. Monopoly Money: the effect of payment coupling and form on spending behavior. Journal of Experimental Psychology Applied,2008:14:213-225.
12. Dewan SG, Chen LD. Mobile payment adoption in the USA: a cross-industry, cross-platform solution. Journal of Information Privacy and Security,2005:1:4-28.
13. Liu S, Zhuo Y, Soman D, Zhao M. The consumer implications of the use of electronic and mobile payment systems. Rotman School of Management, University of Toronto, 2012.
14. Rathore HS. Adoption of Digital Wallet by Consumers. BVIMSR's Journal of Management Research,2016:8:69.
15. Padashetty S, Kishore KS. An Empirical Study on Consumer Adoption of Mobile Payments in Bangalore City-A Case Study. Researchers World,2013:4:83.
16. Taheam K, Sharma R, Goswami S. Drivers of Digital Wallet Usage: Implications for Leveraging Digital Marketing. International Journal of Economic Research,2016:13:175-186.
17. Mallat N. Theoretical Constructs of Mobile Payment Adoption. 27th Information Systems Research Seminar, Scandinavia (IRIS), Falkenberg, Sweden, 2004, 34-46.
18. Shin H, Ziderman A Student Loans Repayment and Recovery: International Comparisons. Higher Education,2009:57:315-333.
19. KPMG Digital Payment: Analyzing the cyberspace, 2017. https://assets.kpmg.com/content/dam/kpmg/in/pdf/2017/04/Digital_payments_Analysing_the_cyber_landscape.pdf
20. IMAP report Payments Industry in India Q4, 2016. http://www.imap.com/Reports/Q4%202016%20Payments%20Industry%20in%20India.pdf
21. Nunnally JC. Psychometric theory (2nd ed.). McGraw-Hill, New York, 1978.