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Adoption of Digital Payments in Indian Economy - A Comprehensive Survey on the Role of UPI in Automating Small and Medium Businesses in Jabalpur, MP

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Abstract: This study aims to investigate the adoption of online payments while focusing on the role of "Unified Payments Interface (UPI)" in automation of "small and medium enterprises (SMEs)" located in Jabalpur, India. With the rise in digital economy in India, UPI has made a transformative impact with evidence on its effect among SMEs in tier-2 city like Jabalpur. It addresses the gap by determining frequency and level of adoption of UPI and evaluating important factors affecting its use. A self-structured questionnaire was prepared with close-ended questions (based on 5-point Likert scale) and distributed to 300 SMEs across retail, manufacturing, and service sectors. Collection of data includes modes of payment, business profile, frequency of using UPIs, and in-depth perceptions of convenience of UPI, payment modes, business profile, automation benefits, user attitudes, and challenges. Before hypotheses testing, Cronbach's Alpha test was conducted to determine the reliability of questionnaire (Alpha = 0.955). Both multiple linear regression and one-sample t-tests were conducted using SPSS software to determine the impact of adoption of UPI and predictive strength of security, perceived ease of use, and digitalization. Findings of the study reveal that there is high prevalence of UPI, as majority of SMEs perceive adoption of UPI to improve operational efficiency, promote processing of payments, and automate transactions. With regression analysis, it is found that perceptions of security and digital preparedness are strong predictors of adoption of UPI, while there are significant challenges due to perceived costs. It is concluded that integrating UPIs successfully is closely related to factors like confidence in security and digital infrastructure. Digitalization of SMEs in emerging economies is further accelerated by addressing technical issues and adoption costs. Findings of this study provide important insights for fintech providers, policymakers, and business leaders looking forward to modernize operations and improve financial inclusion with online payments.

Keywords: digitalization, UPI, Automation, SMEs, digital payments, Indian economy

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INTRODUCTION

Unified Payments Interface (UPI) has transformed the way financial transactions are made and brought a lot of financial benefits to the masses. It has transformed the way how to conduct financial transactions by providing a secure, cost-effective, and instant payment method. It improves financial inclusion and offers digital payments to businesses and people, especially the ones in semi-urban and rural areas where banking services are not available everywhere. By saving transaction costs for financial institutions and users, UPI improves overall financial efficiency, enabling "small and medium-sized enterprises (SMEs)" to allocate resources for organizational growth rather than high transaction charges (Joshi et al, 2025).

UPI plays a vital role in enhancing cashless economy and cutting costs related to distribution, printing, and managing currency. It promotes transparency in transactions to curb the risk of tax evasion and reduce

issues related to black money. With potential for real-time payments, UPI improves economic performance, contributing directly to the growth of GDP by promoting e-commerce and more efficient processes. In addition, it has become a key enabler of economy, empowering start-ups, businesses, and consumers with innovative solutions to improve both convenience and efficiency (Joshi et al, 2025).

On the other hand, UPI enhances stability by improving validation and traceability of financial transactions, which ultimately reduces shadow economy and improves tax compliance. By integrating global payment systems smoothly, UPI plays a vital role in global trade and enables smooth "cross-border transactions." In addition, it has significant contribution to form a competitive environment driving innovation in fintech, resulting in technological advancements and services. UPI promotes both businesses and consumers, catalyzing modernized economy in India, and promoting reasonable growth while focusing on digital finance (Joshi et al, 2025).

This study aims to investigate the impact of UPI adoption in small and medium enterprises. It transforms the lives of masses but also poses security threats. In 2024, 2,92,800 cases had been registered against cybercrime, costing around Rs. 2054.6 crores to Indian economy. It may reach 1 trillion per annum by the year 2033. As per RBI in response to RTI application, there were 5,82,000 cases of cyberfraud reported from FY 2020 to FY 2024 and over Rs. 3207 Cr were spent (Siddiqui and Ahamed, 2024). Computer networks in India may face over 1 trillion cyberattacks every year by 2033 and 17 trillion by the year 2047, as per a study by PRAHAR (The Hindu, 2024).

On addition, UPI apps have transformed Indian payment system rapidly. The payment system of UPI was introduced by the "National Payments Corporation of India (NPCI)" as the forerunner of digital payment solutions in India to promote real-time, instant inter-bank transactions. Even till October 2024, UPI had managed 16.58 billion transactions successfully with Rs. 23.5 trillion. In FY 2023-24, another boost was UPI reaching over 131 billion transactions (Siddiqui and Ahamed, 2024). Some of the key market players are GPay, PhonePe, and PayTM enabling businesses and consumers to adapt to new digital payment environments. The concept of digitalization provides effective and various platforms to reshape financial sector in India.

LITERATURE REVIEW

UPI provides smooth, cost-effective, and secure digital payments with improved convenience and large-scale acceptance. Sharma and Chauhan (2025) conducted a case study which covers the perspective of merchants. How have soundboxes and UPI transformed their practices and operations? They delved into merchants' experiences who use UPI, focusing on digital ecosystem, role in improving financial inclusion, and encouraging cashless economy.

Phatak (2023) focused on the increasing realm of online payment solutions and their effect on small enterprises in Pune, Maharashtra. The methodology covers structured questionnaire, distributed offline and online, to target different small businesses. This study has achieved a rich dataset of 300 businesses. Findings of the study revealed huge positive impact of adoption of digital payments on customer satisfaction and sales volume. A notable number of organizations have saved transaction costs and enhanced operational efficiency. Challenges like security and technical failure were also the problem.

There was a strong correlation between business type and extent of benefits from digital payments.

Joshi et al (2025) examined how UPI transforms lives, although it also poses security risks. They conducted a survey on 513 participants as per security concerns, demographic trends, and payment options. It is observed that there was a vast adoption of UPI in Gandhinagar and Ahmedabad. Google Pay emerged as a market leader, after PhonePe and PayTM. There were security issues which underscore the need for better digital infrastructure to improve user satisfaction and trust.

Bhosale and Khaire (2025) highlighted how adoption of UPI has reduced dependence on cash transactions, expanded market reach, and improved management of cash flow for small organizations with an in-depth assessment. In addition, it determines challenges that entrepreneurs face, such as, security issues, infra limitations, and challenges related to digital literacy, which may affect the efficiency of UPI adoption. Findings of the study provide important insights on the role of digital payments in promoting economic growth and provide recommendations to improve the adoption of UPI.

Research Gap

A lot of studies have focused on the impact of adopting UPI on SMEs. However, most of them have focused on metro cities or at national levels. So, localized analysis was required in tier-2 and tier-3 cities. Hence, this study fills a huge gap in investigating the adoption of UPI and its impact on growth and automation of SMEs in a tier-2 city like Jabalpur, India.

Research Objectives

- To investigate the impact of UPI adoption among SMEs in Jabalpur and its effect on automation
- To identify key factors which may impact UPI adoption and determine its impact on consumer experience and efficiency in SMEs

Hypotheses

H1 – There is a significant impact of UPI adoption on operational efficiency and automation in SMEs in Jabalpur

H2 – Perceived Ease of Use, Security, and Digitalization significantly predict adoption of UPI among SMEs in Jabalpur

RESEARCH METHODOLOGY

Research Design

This study is based on a cross-sectional, quantitative research design which systematically analyses the impact and adoption of UPI transactions among SMEs in Jabalpur. This approach captures an insight to existing levels of adoption, perceived benefits of adoption of digital payments, and operational challenges.

Sampling

A stratified random sampling technique has been adopted for selecting SMEs from sectors like services,

retail, and manufacturing to ensure sector-wise representation. Hence, target sample size is around 300 participants from these businesses, offering huge statistical strength for data analysis.

Data Collection

A self-structured questionnaire will be used for collecting primary data for measuring important constructs like perceived impact, level of adoption, automation, efficiency, and consumer experience. The questionnaire consists of demographic and closed-ended (5-point Likert scale) questions. Data will be collected using Google Form distributed through email and social messaging apps.

Data Analysis

Data collected will be analyzed and processed with statistical software. Frequency distribution will be conducted to analyze the frequency of responses. For hypotheses testing, one-sample t-test and Linear Regression tests will be conducted to determine the impact and associations of UPI adoption on customer experience and business operations. Cronbach's Alpha test will be conducted to analyze the reliability of survey tools.

DATA ANALYSIS

Demographics

In this study, 134 (45%) SMEs are engaged in service sector, 133 (44%) SMEs belong to retail sector, and 33 (11%) SMEs are in manufacturing sector out of 300 participants from SMEs participated in this study. It reflects majority of participants are from service and retail sectors (Table 1) (Figure 1).

Table 1: Type of Business

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Manufacturing	33	11.0	11.0	11.0
	Retail	133	44.3	44.3	55.3
	Service	134	44.7	44.7	100.0
	Total	300	100.0	100.0	

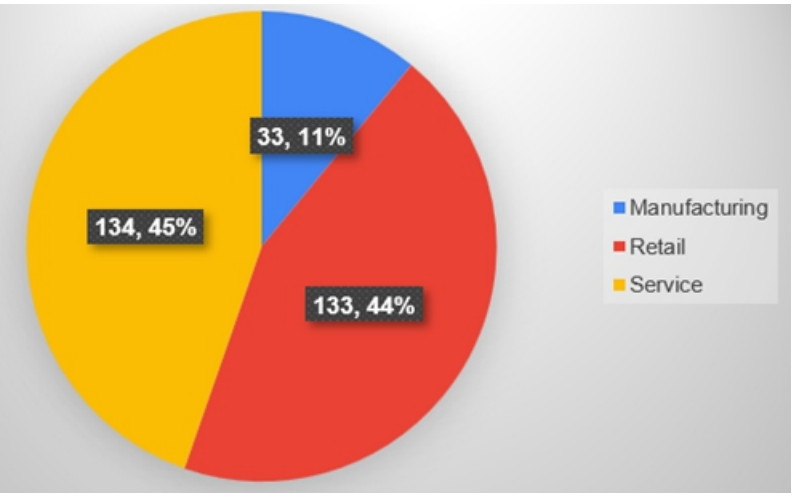

Figure 1 - Type of Business

In this study, 166 (55%) participants have 1 to 5 employees. Hence, majority of SMEs are micro-businesses. In addition, 66 (22%) SMEs have 6 to 20 employees, 35 (12%) SMEs have more than 50 employees, and only 33 (11%) SMEs have 21 to 50 employees (Table 2) (Figure 2).

Table 2: No. of employees

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1–5 employees	166	55.3	55.3	55.3
	21–50 employees	33	11.0	11.0	66.3
	6–20 employees	66	22.0	22.0	88.3
	More than 50 employees	35	11.7	11.7	100.0
	Total	300	100.0	100.0	

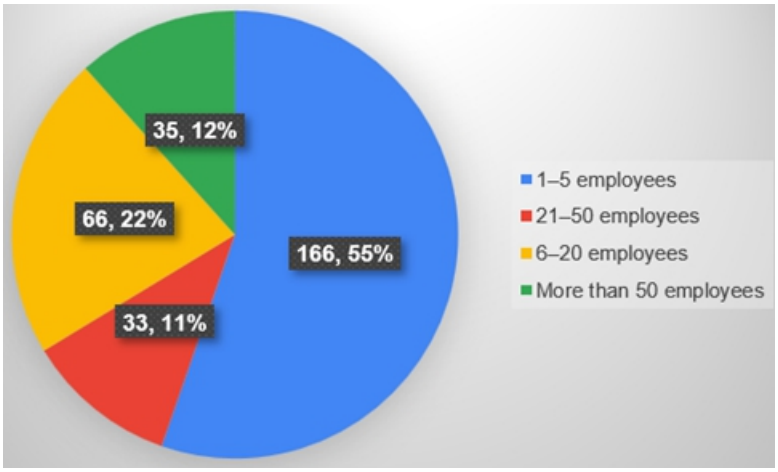

Figure 2: No. of Employees

There are 116 (39%) SMEs who use UPI as a primary mode of digital payment, beating all other modes of payment like wallets or cards. There are 72 (24%) SMEs offering debit/credit cards as mode of payment, 48 (16%) SMEs offer mobile wallets as mode of payment, and only 10 (3%) SMEs were offering only cash as mode of payment. Finally, 54 (18%) SMEs have all of the above payment modes (Table 3) (Figure 3). Overall, UPI is most adopted system for digital payments and it is also the core of operational digitalization in urban centers in India.

Table 3: Mode of payment offered to customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	All of the above	54	18.0	18.0	18.0
	Cash	10	3.3	3.3	21.3
	Debit/Credit Cards	72	24.0	24.0	45.3
	Mobile wallets	48	16.0	16.0	61.3
	UPI	116	38.7	38.7	100.0
	Total	300	100.0	100.0	

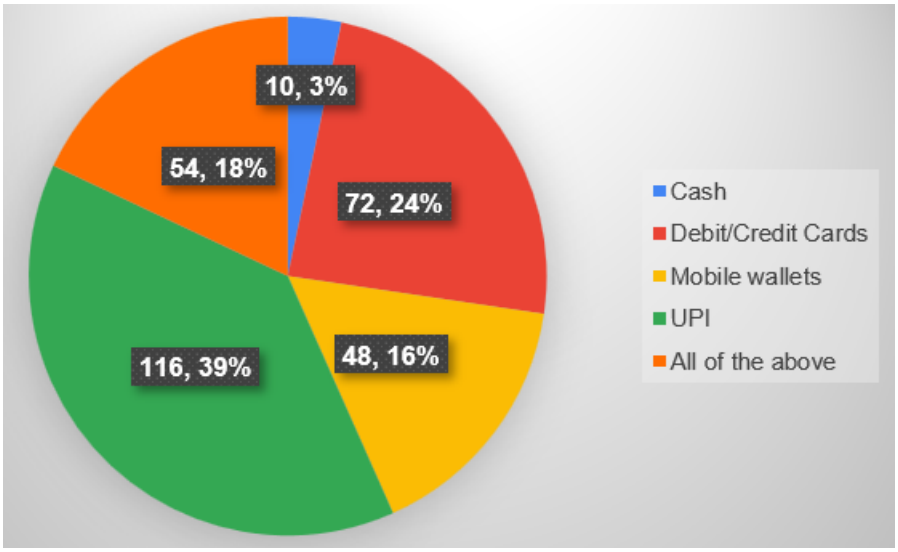

Figure 3: Mode of payment offered to customers

When it comes to level of adoption of UPI, there are 151 (50%) SMEs who use UPI every day, 112 (37%) SMEs use UPI several times in a day, and only 37 (12%) SMEs use UPI only 1 to 2 times a week. It shows deep market penetration of UPIs and increased frequency of using UPIs (Table 4) (Figure 4).

Table 4: Frequency of UPI use (Level of adoption)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-2 times a week	37	12.3	12.3	12.3
	Daily	151	50.3	50.3	62.7
	Multiple times daily	112	37.3	37.3	100.0
	Total	300	100.0	100.0	

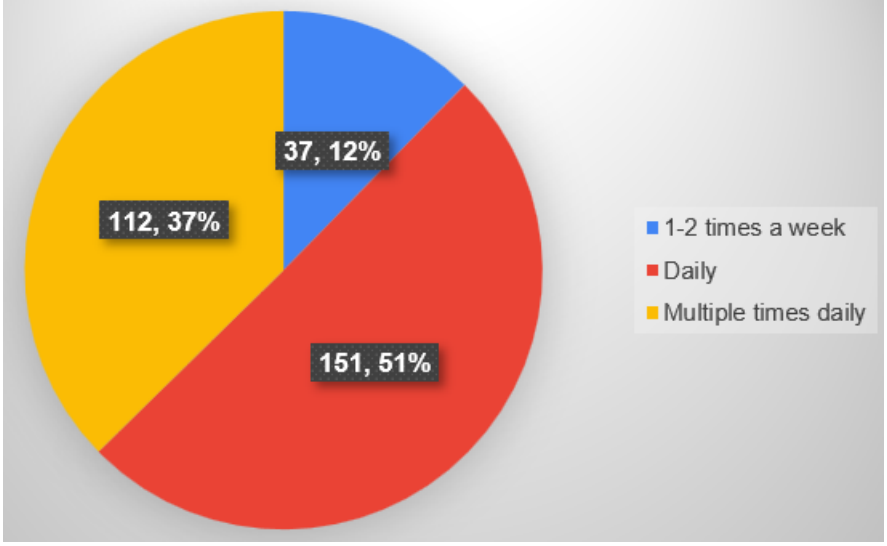

Figure 4: Frequency of UPI use (Level of adoption)

UPI Adoption and Business Automation

Table 5 shows responses on adoption of UPI and influence on business operations from 300 SMEs. There are 45% participants who strongly agree and 22% participants agree that adoption of UPI has automated financial transactions, which means they feel that UPI has automated their financial operations significantly, cutting manual handling. Around 67% participants strongly affirm that UPI has reduced manual effort in processing payments and keeping record. There are 67% SMEs that perceive a rise in business transactions since they have adopted UPI. There are 22% participants who strongly disagree and 11% participants who disagree that UPI payments are more convenient than other modes, while around half (56%) participants found it more convenient than debit cards and cash for customers. Finally, strong majority of population (68%) believe that processing customer payments has been faster with adoption of UPI.

Overall, UPI is widely accepted when it comes to transform the way transactions are conducted in SMEs in India, making operations more scalable, efficient and aligned with the push towards cashless economy.

Table 5: Adoption of UPI and Automation of Business

Responses	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Adoption of UPI has automated financial transactions	33 (11%)	33 (11%)	33 (11%)	66 (22%)	135 (45%)
UPI reduces manual effort in record-keeping and processing payments	33 (11%)	33 (11%)	33 (11%)	34 (11%)	167 (56%)

There has been a rise in transactions after UPI adoption	33 (11%)	33 (11%)	33 (11%)	67 (22%)	134 (45%)
UPI payments are more convenient than cash and debit cards for customers	66 (22%)	33 (11%)	34 (11%)	66 (22%)	101 (34%)
Processing customer payments has been faster with UPI adoption	33 (11%)	33 (11%)	33 (11%)	68 (23%)	133 (44%)

Perceived Impact and Factors

There are 55% SMEs which agree that UPI improves operations and has improved efficiency for them. There are 66% participants who positively affirm that adoption of UPI is strongly promoted by ease of use. Opinions among participants vary. Security is widely recognized to reflect various levels of confidence. When it comes to customer preference for UPI, it is found to be moderately positive, suggesting varied consumer behaviors. Finally, strong internet connectivity is well regarded to be important for smooth adoption of UPI, highlighting infrastructure as an important enabler (Table 6).

Table 6: Perceived Impact and Factors Influencing UPI adoption

Responses	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
UPI has improved overall efficiency of businesses	33 (11%)	33 (11%)	68 (23%)	66 (22%)	100 (33%)
Secure transactions improves willingness to use UPI	33 (11%)	66 (22%)	68 (23%)	66 (22%)	67 (22%)

Ease of using UPI makes it easy to adopt for a lot of transactions	33 (11%)	33 (11%)	34 (11%)	34 (11%)	166 (55%)
UPI is preferred by consumers over card or cash payments	66 (22%)	33 (11%)	33 (11%)	67 (22%)	101 (34%)
Solid internet connectivity promotes adoption of UPI	33 (11%)	33 (11%)	33 (11%)	167 (56%)	34 (11%)

Factors related to Attitude and Barriers

Table 7 suggests that most of the SMEs feel that their confidence has been increased by security in UPI transactions (around 55% agreeing and strongly agreeing). Similarly, 55% SMEs feel that UPI platforms are user-friendly for both owners and staff. Majority (56%) participants feel that they have enough digital skills for operating UPI. However, 56% SMEs have reported that UPI transactions are constantly affected by technical issues. Around 45% SMEs find perceived costs related to transaction fees or devices as a significant barrier for adoption. Even though adoption of UPI has been supported by positive perception for usability and security, it still has cost and technical barriers.

Table 7: Factors associated with Challenges and Attitude

Responses	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Security of UPI enhances confidence for business	33 (11%)	33 (11%)	67 (22%)	100 (33%)	67 (22%)

UPI platforms are user-friendly for both staff and owner	33 (11%)	33 (11%)	67 (22%)	67 (22%)	100 (33%)
I have enough digital skills for using UPI smoothly in operations	33 (11%)	33 (11%)	33 (11%)	33 (11%)	168 (56%)
Technical issues often affect UPI transactions	33 (11%)	33 (11%)	33 (11%)	33 (11%)	168 (56%)
Perceived costs like device cost, transaction charges, etc. are a significant challenge for adoption of UPI	33 (11%)	66 (22%)	34 (11%)	33 (11%)	134 (45%)

Hypotheses Testing

Before hypothesis testing, Cronbach's Alpha test was conducted using SPSS software. Alpha value of 0.955 indicates excellent internal reliability for 15 items in the questionnaire. Hence, questionnaire is found to be highly consistent for adoption and perception (Table 8).

Table 8: Reliability Statistics

Cronbach's Alpha	N of Items

.955	15

H1 – There is a significant impact of UPI adoption on operational efficiency and automation in SMEs in Jabalpur

In order to test the impact of adoption of UPI on automation and operational efficiency, one sample t-test was conducted. Table 9 lists one-sample statistics which consists of Mean and Standard Deviation. Mean value for all measures of impact of UPI (such as, reducing manual effort, automation, convenience, and payment speed) is ranging from 3.34 to 3.90 with test value of 3 (neutral) (Table 9).

Table 9: One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Adoption of UPI has automated financial transactions	300	3.79	1.397	.081
UPI reduces manual effort in record-keeping and processing payments	300	3.90	1.447	.084
There has been a rise in transactions after UPI adoption	300	3.79	1.396	.081
UPI payments are more convenient than cash and debit cards for customers	300	3.34	1.564	.090
Processing customer payments has been faster with UPI adoption	300	3.78	1.394	.080

In one sample t-test (Table 10), all items related to impact are statistically significant ($p < 0.001$) with test value of 3, having confidence intervals (CI) and mean differences not going above zero. It supports the belief that UPI actually improves operations related to SMEs.

Table 10: One-Sample Test on impact of UPI adoption on operational efficiency and automation

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Adoption of UPI has automated financial transactions	9.793	299	.000	.790	.63	.95
UPI reduces manual effort in record-keeping and processing payments	10.735	299	.000	.897	.73	1.06
There has been a rise in transactions after UPI adoption	9.763	299	.000	.787	.63	.95
UPI payments are more convenient than cash and debit cards for customers	3.802	299	.000	.343	.17	.52
Processing customer payments has been faster with UPI adoption	9.734	299	.000	.783	.62	.94

H2 – Perceived Ease of Use, Security, and Digitalization significantly predict adoption of UPI among SMEs in Jabalpur

When it comes determine the prediction of perceived ease of use, digitalization, and security on adoption of UPI, Linear Regression test was conducted using SPSS software. In Model Summary, R value of 0.957 and

R-square value of 0.915, suggest that 91.5% of variance is found in adoption of UPI explained by perceived security, costs, and digitalization (Table 11).

Table 11: Model Summary for Perceived Ease of Use, Security, and Digitalization

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.957	.915	.915	1.10913

When looking at ANOVA table, F value was 1067.79 and significant value of $p<0.001$ suggests highly significant model (Table 12).

Table 12: ANOVA Table for Perceived Ease of Use, Security, and Digitalization

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3940.659	3	1313.553	1067.791	.000[b]
	Residual	364.127	296	1.230		
	Total	4304.787	299			
a. Dependent Variable: UPI adoption						
b. Predictors: (Constant), Digitalization, Security, Perceived costs						

Digitalization is found to be the strongest positive predictor with Standardized Beta value of 0.935 and Unstandardized Beta value of 1.006 ($p<0.001$). There is a significant positive impact of security on adoption of UPI, with Standardized Beta value of 0.455 and unstandardized Beta value of 0.818 ($p <0.001$). However, there was significant negative effect of perceived costs (with Standardized Beta of -0.424 and Unstandardized Beta value of -1.073) ($p<0.001$). Hence, higher trust in security and digital preparedness improve the adoption of UPI (Table 13).

Table 13: Coefficients table for Perceived Ease of Use, Security, and Digitalization

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.474	.256		-9.654	.000
	Perceived costs	-1.073	.109	-.424	-9.822	.000
	Security	.818	.056	.455	14.481	.000
	Digitalization	1.006	.045	.935	22.494	.000
a. Dependent Variable: UPI adoption						

DISCUSSION AND CONCLUSION

Findings of the study suggest that UPI has been strongly accepted with frequent use and positive perceptions of its impact on efficiency and automation of businesses in SMEs based in Jabalpur. Majority of SMEs have reported that they have experienced improvement in record-keeping, convenience, and speed after adoption of UPIs, which aligned with national trends for digitalization in SME sector. Security perceptions and digitalization are strong factors for adoption of UPI, as per regression analysis. Cost has been the most noticeable challenge. It suggests that UPI penetration has been improved by reducing them. While a lot of SMEs are concerned about technical issues, SMEs are usually confident with use of UPIs because of reliable internet connectivity and ease of use.

This study strongly supports both hypotheses. Adoption of UPI has improved automation and operational efficiency for SMEs and perceived security and digitalization have strongly and positively influenced adoption of UPI. As SMEs in Jabalpur have turned out to be more mature digitally, such knowledge underscores the need for strong security measures, digital literacy, and reducing costs of adoption to achieve sustainable SME growth and complete modernization of payment system.

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