

Adoption Trends and Challenges in Retail Digital Payment Systems: A Study from Bilaspur, Chhattisgarh

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In recent past, digital payment systems have revolutionized the financial landscape in India and more specifically, in the retail sector. The study presents adoption trends and challenges with adoption of retail digital payment systems in Bilaspur Division of Chhattisgarh. The factors which drive consumers and retailers to adopt digital payment platforms are examined, based on convenience, security, infrastructure and awareness through a mixed methods approach. The study also names some key barriers, like limited digital literacy, technological challenges and resistance to change. Through surveys and interviews, we collect data to show how government initiatives, financial institutions and fintech companies fostered the use of digital payments. The results suggest that the current digital payment systems can help fill the gap between traditional and digital economies and provide useful tips for the adoption of retail digital payments in semi urban and rural areas. The influence of digital payment adoption dynamics and how to conquer challenges in achieving inclusive financial growth is what this research contributes to the understanding.

Keywords: Digital payments, adoption trends, retail sector, financial inclusion, challenges, digital literacy, fintech.

1. Introduction

In India, the digital technologies have led to a major change in the payment systems evolution. The retail sector has seen payment systems go through immense transformation especially through modern payment systems, that is digital payment platforms. Indian government has been focusing on making India a cashless economy through initiatives like Digital India, Pradhan Mantri Jan Dhan Yojana (PMJDY) and Unified Payment Interface (UPI), which has led to the spread of digital payment methods as prominently in urban as well as rural regions.

Being a semi urban region with rapidly growing economy, case of Bilaspur Division in Chhattisgarh stands out to study the adoption of these retail digital payment systems. These systems offer convenience, transparency and efficiency in urban areas and their adoption in the semi urban and rural areas comes across hurdles of low digital literacy, lack of infrastructure and concerns of safety and privacy of the data. However, despite these challenges, the use of digital payment platforms including mobile wallet, UPI based apps and

point of sale (POS) terminals has been gradually picking up among consumers and retail in this region.

The current study attempts to analyze the adoption trends of retail digital payment systems in the Bilaspur Division and examine the challenges in the universal usage of these systems. This research aims to uncover actionable insights for stakeholders—such as policymakers, financial institutions, and technology providers—to increase the penetration of digital payments in underserved areas relying on the knowledge of the socio-economic, technological, and behavioral factors behind the adoption of digital payment systems.

2. Literature review

With regard to the revolutionary effects that digital payment systems are having on many industries, especially retail, studying their adoption has become an important focus of academic inquiry. Mobile wallets, contactless payments, and blockchain-based solutions are all part of digital payment systems, and they all have their own set of pros and cons. In order to have a better grasp of these systems, it is necessary to do a thorough literature analysis that focusses on the drivers of adoption, the technical developments that are causing these changes, and the obstacles that stores encounter when trying to integrate these technologies. New research shows that changing customer expectations are a major factor in the rise of digital payment methods. Shops are being forced to adopt these new payment methods by modern customers who want faster, more secure transactions (Smith, 2022).

The most notable shift here is the rapid rise of the fast-payment solutions such as Samsung Pay, Apple Pay, as well as Google Wallet. The adoption of mobile wallets has grown tremendously due to the flexibility of paying with a smartphone (Kumari et al., 2023) and that customers prefer easy to use and integrate methods. Such convenience is in parallel with the general trend towards the so-called cashless society, when Internet purchases are increasingly replacing the more traditional approaches (Lee & Nguyen, 2024). Another precondition stimulating the use of digital payment methods is the competitive environment.. These technologies are perceived by retailers as the means to differentiate themselves from the competitors and satisfy demand of choosy and hi-tech consumers. Customers value the ease and speed of making digital payments, so it follows that Davis and Johnson (2023) have stated that giving different options may increase satisfaction and retention levels. However, digital payment systems may assist businesses to promote an image of uniqueness from competitors by enabling the customers to make payments that enable them to take up various promotion strategies offered by the merchants in the payment platforms as sought by Brown and Green (2023).

Technological progresses are mainly responsible for the increase and popularity of digital payment methods. The innovation of near-field communication technology has advanced the business of contactless payment or transactions. As Anderson et al. (2023) have described, many examinations show that NFC technology facilitates secure payments by reducing transaction durations and contact. This is especially important when it comes to health matters predisposing or resulting from the Covid-19 epidemic. Blockchain technology has also been called revolutionary in the sphere of reliable open financial operations, although its

applicability area is not limited to financial systems and it may be used for smart contracts and cryptocurrency (Taylor & Lewis, 2024). Owing to changes in customer behavior as well as advancement in technology, the emergence of electronic payment system as a dominant tool in retailing has been of interest to scholars and practitioners. Since customers expect the retailers to become more efficient and convenient, in order to adapt the fast growing retail industry more and more of them are using these technologies (Emon et al., 2023).

Consumers expect transactions to be seamless and convenient; this has caused companies to integrate contact less payments and mobile payments (Emon & Khan, 2023). Not only, they address clients' needs for innovative solutions to enjoy enhanced experiences, but they do also generate rich data to inform consequential decisions (Emon et al., 2024). The transition to use of online payment system, however, is not without challenges. Issues arising from technical integration problems and the need to adopt the extant point-of-sale systems can also prove expensive and time-consuming to sort out (Khan et al., 2020). The problem gets worse regarding security measures, as the stores must use strict measures to ensure that only allowed individuals access the most important consumer data (Emon, 2023).

Implementing these systems is not cheap and also involves recurring transaction expenses, which are essential considerations to make (Khan et al., 2019). Despite these issues, digital payments make up their cost in the long run through volume sales and better operations (Khan et al., 2024). If adopted properly the use of digital payment technologies results to consumers' satisfaction and loyalty, increased transaction frequency and enhanced average transaction sizes (Emon & Chowdhury, 2024). This is in line with Hasan and Chowdhury, (2023) who established that the use of digital payments enhanced the shopping experience through posited dimensions of ease. An additional benefit of digital payment systems is the ability to use transaction data for marketing and inventory management (Khan, 2017).

Despite the research done in the area of, and specifically in the retail industry, surrounding the implementation and advantages of DPMs, this is an area that has been relatively unexplored in relation to semi-urban consumers, such as those living in the Bilaspur Division of Chhattisgarh. Most past studies are mainly concentrated on urban areas and developed technology-based regions, but the present study captures specific socio-economic and infrastructural problems of less-developed regions. Further, there is comparatively fewer studies carried out on the behavioral factors that affect both the consumers and the retailers who integrate these systems. This suggests that an assessment of the adoption trends and factors, and policy recommendations required for deepening digital payments for the underbanked in the region, is warranted.

3. Research objectives

- [1] To analyze the current adoption trends of retail digital payment systems in the Bilaspur Division.
- [2] To identify the key challenges faced by consumers and retailers in adopting digital payment systems.

[3] To evaluate the impact of government initiatives and technological advancements on digital payment adoption.

4. Hypothesis:

H₀ (Null Hypothesis): There is no significant adoption of retail digital payment systems in the Bilaspur Division.

H₁ (Alternative Hypothesis): There is a significant adoption of retail digital payment systems in the Bilaspur Division.

5. Research methodology

The research design of this study consequently uses both qualitative and quantitative research to develop a deeper understanding of the adoption pattern and issue related to retail digital payment systems in the Bilaspur Division of Chhattisgarh. The quantitative study consists in an organised consumer/retailers’ questionnaire aimed at estimating the actual usage, preference, and perceived obstacles. To achieve its goal of sample representativeness the study uses stratified random sampling where the different population strata include age, gender, income, and education levels. The qualitative aspect consists of interviews with individuals involved in the adoption of digital payments including, retail businesses, financial institutions, and policy makers to understand closely the challenges and factors for adoption. Descriptive analysis is used on the survey data with the use of statistical means while the qualitative responses are analyzed through the use of thematic analysis. Through the use of this methodological framework, the study is able to isolate pertinent factors of adoption based on the region and come up with activity-based measures for key stakeholders.

6. Data analysis and discussion

Table 1 – Descriptive statistics

Variable	Mean	Standard Deviation	Minimum	Maximum	Frequency (%)
Age (years)	34.8	10.5	18	60	
Gender					Male: 60%, Female: 40%
Education Level					High School: 30%, Graduate: 50%, Postgraduate: 20%
Monthly Income (₹)	25000	12000	5000	80000	
Frequency of Digital Payment Usage	4.2	1.1	1 (Rarely)	5 (Daily)	Rarely: 5%, Occasionally: 15%, Frequently: 35%, Daily: 45%
Preferred Digital Payment Methods					UPI: 50%, Wallets: 30%, Cards: 20%
Awareness of Government Initiatives					Aware: 70%, Unaware: 30%

Primary Reason for Adoption					Convenience: 40%, Cashback/Offers: 30%, Security: 20%, Peer Influence: 10%
Barriers to Adoption					Digital Literacy: 40%, Network Issues: 30%, Security Concerns: 20%, Cost of Devices: 10%

Descriptive analysis helps giving a general idea about the demographic structure of the respondent as well as their behaviors regarding the implementation of the retail digital payment systems in the Bilaspur Division. The participants' average age is 34.8 years, the standard deviation is 10.5; the age of respondents ranges from 18 to 60 years. Among the sample, 60% are males and 40% are females. In terms of educational level, 50% are graduates, 30% have high school education and 20% have post graduate education indicating a moderately educated participants group.

Their monthly income, again, reflects variability around ₹25,000 (SD = ₹12,000) varying from ₹5,000 to ₹ 80,000 which means IDAs has effective representation of different classes of employees. The results of the digital payment usage are quite high at a mean of 4.2 indicating frequent to daily usage of digital payment by most participants. In particular, 45% reported that they frequently utilize what has already become a well-known digital payment form, daily, and 35% stated they frequently use digital payments.

UPI emerges as the most used payment mode by consumers with 50% preference, then mobile wallets at 30% and cards at only 20%. Furthermore, 70% of the respondents are aware of government promotions regarding digital payments to improve outreach. Practicality was reported most, at 40%, while 30% people opted for the technology because of cash back, 20% because of security issues and 10% due to peer pressure.

A sample of the current barriers include; 40% indicated that their resistance to adopting digital technologies was due to lack of adequate digital skills, 30% cited network constraints, 20% Security issues while the rest 10% cited costs of devices. These implications suggest that although digital payment is well established, questions about its education, infrastructure, and security remain as important issues that have to be resolved to build and improve adoption.

Table 2: Results of One-Sample t-Test for Retail Digital Payment Adoption

Variable	Sample Mean	Test Value	t-Statistic	Degrees of Freedom (df)	p-Value	Decision
Frequency of Digital Payment Usage	4.2	3.0	15.67	224	< 0.001	Reject Null Hypothesis (H_0)

Hypothesis testing on the One-Sample t-Test for the dependent variable Frequency of Digital Payment Usage shows a significant result pertaining to the propensity of adoptive retail digital payment systems in the Bilaspur Division. From the results of the survey, the sample mean of 4.2 which is the average of the digital payment usage frequency is significantly above the hypothesized test value of 3.0. This means respondents tend to use the digital payment more than the midpoint which means there is a higher degree of adoption towards the digital payment.

The value of 15.67 is clear and looked quite large as it refers to t-statistic which is the function of the difference between the sample mean and the constitute test value in term of standard

error. That is why the counted difference has a random probability significantly lower than the observed one, proving the authenticity of the conclusions.

At a level of freedom of 224 (one less the sample size of 225) the p-value is computed to be less than 0.001, a value far below the conventional alpha of 0.05. This strongly supports the rejections of the null hypothesis (H_0) which postulated no significant adoption of retail digital payment systems in the region. So, it is possible to accept the H_1 of the study, which postulated the active usage of digital payment systems in the Bilaspur Division.

Therefore, the respondents in Bilaspur have adopted the digital payment significantly proving the shift towards the usage of retail payment-systems in digital platforms.

7. Conclusion

In assessing the findings for this study on the adoption of retail digital payment systems in the Bilaspur Division of Chhattisgarh, these following trends are identified together with the forces of influence and restraints to adoption.

According to this study, they also believe that the adoption of retail digital payment systems is high in the region and the users are very active using the digital payments often and widely preferred modes of payments are generated through mobile wallets, UPI apps and other contactless modes of payments. This high level of adoption is also corroborated by the One-Sample t-Test outcome where the sample mean = 4.2 (out of 5) and this is significantly away from the hypothesized mean of 3.0, which is halfway the scale. The calculated t-statistic is fairly large 15.67 and therefore we can reject null hypothesis because the p-value is much less than 0.001 which supports the conclusion that digital payment systems have really integrate into retail transaction in Bilaspur.

The following are some of the reasons leading to this adoption; convenience, cash back/offers, and security. The findings also suggest the encouraging effect of the government in raising understanding and the uptake of e-commerce payment methods. However, issues like, digital division, network problems or sometimes security concerns still prevail albeit with seeming less influences as the benefits of internet based payment has over the physical payments.

From a retailer's point of view, the implementation of the Digital Payment Systems has benefits such as; Competitive advantage, customer satisfaction and efficiency. While implementing digital payment system may be expensive and requires integration, it opens up extra value adding services for retailers end customers, promotional programs and information gathering.

Altogether, the extent of retail digital payment systems in Bilaspur Division is found to be quite high thanks to the modern technology, customer preference, and intentional promotion from all valued dealers and the Indian government. But for a long time more benefits can be derived from these payment systems, then the barriers associated with literacy, security and infrastructure must be addressed. The results revealed the increase in merchants' awareness, which is the biggest driver behind the adoption of digital payments; education is still required to make the best of it across all affiliated members of the region.

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