

Study of the Factors Influencing Petty Vendors' Adoption of the Unified Payment Interface

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UPI, Digital payments, Petty vendors, Performance expectancy, Efforts expectancy, Social influence.

JEL Classification

E21, E22, E26, O31, O33.

Abstract: In today's world of digitalization, Unified Payment Interface (UPI) has paved the way for transforming India into a cashless economy. This research paper focuses on petty vendors transacting through UPI applications to understand and examine the hurdles they face while doing online transactions. The sample data was collected by formulating a structured close-ended questionnaire driven on 100 petty vendors as a sample population from the Delhi NCR region. The research was accomplished in June-August 2022. The hypothesis was formulated by taking variables such as performance expectancy, effort expectancy, and social influence, which were then tested through paired sample t-tests. SPSS and Ms-Excel software was used for data analysis. It was found that performance expectancy and effort expectancy factors have affected petty vendors while using UPI, but social influence did not affect them much. UPI services are used more by educated people, and most respondents are younger. The findings have strategic implications for managers of banks and financial institutions.

1. Introduction

The advancement of technology and digitization is flourishing quickly in India. Smartphones and the internet have become an indispensable aspect of modern life. Because the future is full of technology-driven payment systems, the mobile payment system is the next big thing in this arena (Kumar and Mathur, 2021). It has made significant contributions to the empowerment of the Indian economy by improving network infrastructure and mobile connections. As petty vendors contribute a considerable

part to shaping our country's economy, it is crucial to know their opinions and factors such as demographic, technological, financial, personal, and external aspects that impact them regarding adopting UPI transactions. With this, various digital payment system, such as PhonePe, BHIM, Paytm, etc., has reached great extension and popularity among users (Maindola *et al.*, 2018). UPI was designed to build a worldwide affordable digital payment system that would allow instant real-time payment and facilitate interbank transactions that request and send money on the mobile platform without charges (Gochhwal, 2017). Since all UPI apps deploy the same payment interface, users can connect effortlessly with the concerned one. For instance, BHIM users can transmit cash from his/her bank account to the shop owner's bank account that accepts Google Pay. As a result, UPI apps are accepted by most stores in India (Kumar *et al.*, 2020). It may simplify transactions by lessening the obstruction while dealing with cash and enhance the management of verifiable business records to help ease cooperation with the financial sector. Strengthening financial transparency will bring large-scale benefits like boosting tax adherence. As it mentions possible advantages in some aspects, countries like East Africa have become mainstream for digital transactions (Ligon *et al.*, 2019). The adoption of online payment that emerged after the demonetization, announced on 8th November 2016, has switched people's lives and significantly profited the country by creating a cashless economy. It has positively impacted the economy in maintaining its liquidity and helped raise the value of digital payments. Talking about the digital wallet, Paytm users before demonetization were 125 million, which increased to 185 million just after the three months of demonetization, and hiked to 280 million customers in November 2017. The daily online transactions through e-wallets lifted from 17 lakhs to 63 lakhs. In different metro cities, it was noticed that unexpectedly small traders at their stores began placing Point of Sales (POS) machines for accepting digital payments (Pandey, 2022). UPI has revolutionized the digital payments landscape in India and has become an integral part of the country's financial ecosystem, with exponential growth in transaction volume and value over the past few years. Informal traders, such as petty vendors who require little investment and reasonable skill to run their businesses, play a crucial role in the country's economic development (Sharma & Pradhan, 2017). As petty vendors have also begun accepting payments through UPI (Iyer, 2018), it is crucial to know their opinions regarding the usage of the UPI payment system and the factors that affect UPI usage, considering demographic aspects, technological aspects, financial aspects, external aspects, and personal aspects. This paper examines petty vendors' problems and hindrances while making UPI transactions, such as network issues, cybercrime, and literacy issues.

UPI in India

Increasing competitiveness and customer awareness pose a significant influence to all banking sector firms in India (Kompalli and Tharimala, 2022). After the demonetization of major currency notes in 2016 and the widespread adoption of payment applications, the Indian government strongly encourages its residents to use digitized forms of payment. The UPI, which provides easy and immediate cash transactions through various users' bank accounts, was launched by the National Payments Corporation of India (NPCI) in collaboration with Indian banks to encourage small digitized payments at large volumes (Kumar *et al.*, 2020). UPI was launched in India with only 21 banks onboard. By March 2017, the number of banks using UPI had increased to over 44.

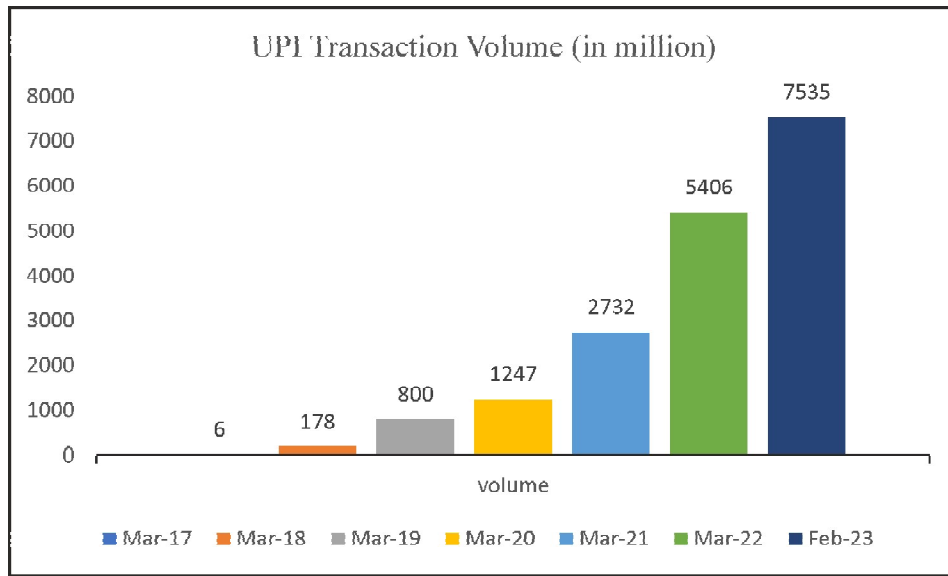


Figure 1: UPI transaction volume from Mar. 2017 to Feb. 2023.

Source: Authors' compilation based on NPCI report

UPI witnessed a significant increase in the number of transactions during this period, from just 0.09 million in August 2016 to over 6.37 million by March 2017. UPI's growth accelerated, with transactions increasing to over 178 million by March 2018. In March 2019, UPI's growth rate accelerated even further, with the number of transactions increasing to over 800 million. In March 2020, it went to around 1247 million. The COVID-19 pandemic drove the adoption of digital payments at an even more incredible pace by increasing to around 2732 million by March 2021 and over 5406 million by March 2022. Moreover, the number of transactions in 2023 by February is 7535 million.

2. Literature Review

Pandey (2022) discovered that because digitized payment options offer better convenience, users will likely lessen their cybercrime incidence. Depending on the purpose of the transaction, different types of fraud have different effects on digital payment choices. Moreover, demographic factors influence the broader acceptance of digital transactions.

Rastogi *et al.* (2021) explored the relationship between financial literacy, financial inclusion, and economic development. According to their study, the adoption of UPI significantly impacts financial literacy, leading to greater financial inclusion and ultimately contributing to economic development. The findings suggest that UPI adoption positively impacts individuals in multiple ways beyond just facilitating financial transactions. Overall, the study highlights the importance of financial literacy and inclusion in promoting economic growth and UPI's role in facilitating this process.

Khanra *et al.* (2020) examined the factors contributing to consumer resistance to using UPI for digital payments. The researchers used the innovation resistance theory to identify critical behavioral factors such as transparency and privacy and moderators such as security and word of mouth. The findings suggested that addressing usage constraints and privacy issues is necessary to reduce user resistance and promote UPI adoption.

Patel and Datta (2020) explored factors influencing customers in UPI usage in India and found that hacking and phishing threats restrict UPI usage. Rural people lack awareness of UPI usage and thus do not use it for their financial transactions. The demand for safety standards on digital payment by customers must be administered.

Sivasubramanian and Rajendran (2020) studied the economic conditions of small-scale vendors in Bangalore and the impact of digital payments on their businesses. Their findings indicate that petty traders have adopted the UPI platform, significantly improving their business growth compared to their previous capacity. Overall, the study suggests that UPI has positively impacted the economic conditions of small-scale vendors in Bangalore.

Tripathi (2020) studied the factors influencing consumer adoption of online payment applications. The study revealed that older individuals are generally less inclined to use online payment services. Additionally, the research found that users often face obstacles related to technical complexities, concerns around transparency, and trust issues. The research suggests that several factors, including age and technical difficulties, are significant determinants of consumer adoption of online payment applications.

Philip (2019) analyzed customer perceptions towards UPI and its impact on UPI services. The study's findings suggest that customers view the Unified Payment Interface services positively. Furthermore, the study found that education significantly influences the adoption of digital payment services. At the same time, smartphone usage also plays a critical role in accepting UPI services in a given area. Eventually, the research says that UPI services have gained widespread acceptance among customers, and factors such as education and smartphone usage are critical drivers of this trend.

Iyer (2018) explored that there is strong resistance among vendors to employ UPI payment services because of factors like inadequate education, which should be raised through technical training concerning electronic payments, mobile wallet transactions, etc., as well as software solutions that are simple enough for ordinary people like petty vendors for using. E-wallet applications that are user-friendly and secure and offer financial perks would alleviate the trust concerns among petty vendors, lessen their reluctance, and push them to switch to a cashless society with proper operations.

Chatterjee and Thomas (2017) reviewed their study on UPI, which acts as an impulsive tool for promoting digitalization, and discussed its issues and opportunities. Although it has problems like the risk of money transfer failure, positive facets such as cost-effectiveness, increment in sales of smartphones, and decreased data cannot be disregarded. To ensure consumer involvement and acceptance, banks should optimize user trust and promote UPI for secure and smooth customer payment.

Mohapatra (2017) analyzed that interoperability has become an enormous asset for the expansion of UPI and is continuously increasing because of varied aspects such as a hike in smartphone sales, cheap cost of data, ease of money transfer, and accessibility of mobile banking facilities.

Singh and Rana (2017) studied customers' attitudes toward online payments. Their research revealed that demographic factors, except education, do not significantly affect the adoption of digital payment systems. Individuals proficient in internet use and who have completed at least a secondary education are more likely to prefer online payment systems. The study also found that urban areas with higher education tend to be more receptive to online payment systems. The research suggests that education and internet proficiency are crucial in accepting digital payment systems, while demographic factors have a negligible impact.

Mukhopadhyay (2016) surveyed by using a theoretical model that showed the decisions of customers and traders about the adoption of digital payments. The result showed that users make more payments digitally, which are directly credited to accounts. Remarkably, there has been an increase in cashless payments. Awareness, e-payment cost removal, and incentive schemes will have enormously more significant gains.

3. Research Gap

After reviewing the existing literature on the adoption of the Unified Payment Interface by customers, it was found that numerous studies have been conducted on the various factors influencing their acceptance of the platform. However, there is limited research on petty vendors' perception of UPI and their challenges in adopting the platform. This study addresses this gap by examining the factors that impact petty vendors' approach toward using UPI.

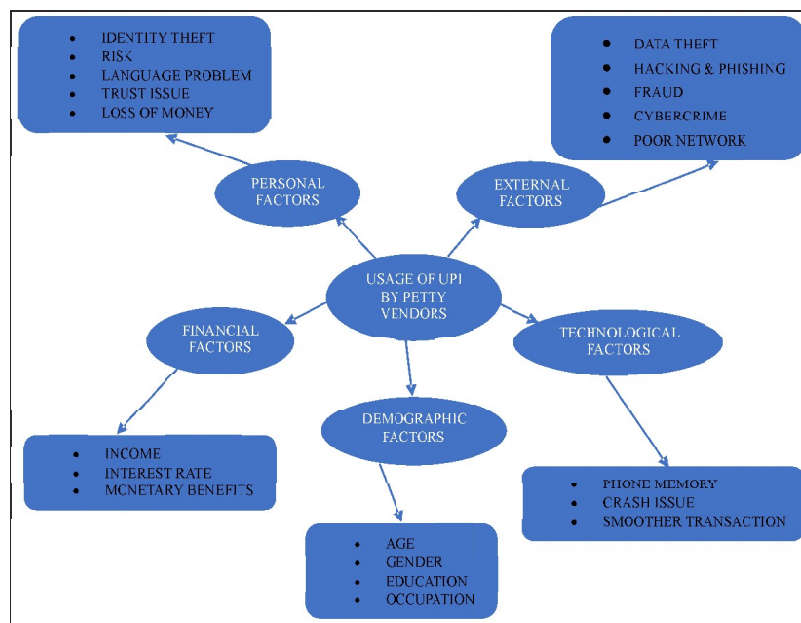


Figure 2: Conceptual Model of Factors Impacting Petty Vendors' Decision to Adopt UPI

Source: Authors' compilation

The above conceptual model is derived after reviewing research based on the factors influencing users' acceptance of UPI. The five major factors are personal, external, financial, demographic, and technological. This research considers these aspects to analyze the data and form a conclusion.

4. Objectives and Hypotheses of Study

4.1. Objectives of the Study

1. To investigate issues that petty vendors face while adopting UPI, and
2. To know the significant factors which are influencing UPI usage.

4.2. Hypotheses of the Study

In this section, the researcher has undertaken the following hypothesis for expecting the right outcome related to the research.

H1: Performance expectancy has a significant impact on UPI usage

H2: Efforts expectancy has a significant impact on UPI usage

H3: Social influence has a significant impact on UPI usage

5. Research Methodology

This study used mixed-method research design that includes both primary and secondary data sources to investigate the factors affecting the approach of petty vendors toward adopting the Unified Payments Interface (UPI). The data was collected in the Delhi NCR region, which has one of India's highest petty vendors. The research approach adopted is quantitative. A convenience sampling method was used to select a sample population of 100 petty vendors based on accessibility which is considered valid for data analysis (Kennedy, 2022). The research was conducted between June and August 2022, and a structured close-ended questionnaire was employed to collect responses from UPI users. The demographic profile of the respondents was analyzed using descriptive statistics to gain insight into their age, gender, occupation, and other relevant characteristics. A paired sample t-test was used to test the hypothesis. The data collected from the respondents were analyzed using SPSS and MS Excel software to identify significant trends and patterns. In addition, this study seeks to explore the challenges faced by petty vendors in adopting UPI as a payment platform and identify the factors influencing their approach toward its adoption. This study aims to provide a comprehensive understanding of the factors that drive or hinder the adoption of UPI among petty vendors.

6. Data Analyses and Interpretation

Table 1 showcases the respondents' key demographics, including their gender, age, occupation, education, and annual income. The data reveals that most respondents were male, constituting 75% of the sample. Furthermore, 34% of the respondents were aged between 18 to 25 years, and 28% had completed their graduation. The research also discovered that 58% of the respondents were self-employed, while 44% earned an annual income of 1-5 lakhs.

Table 1: Demographic Profile of the Respondents

<i>Factors</i>	<i>Options</i>	<i>Frequency</i>
Gender	Male	75
	Female	25
	Total	100
Age	18-25	34
	25-35	32
	35-45	23
	45-60	11
	Total	100
	Education	Up to 5
6 to 10		12
Secondary		18
Higher Secondary		25
Graduate		28
Postgraduate and above		13
No formal education		3
Total		100
Occupation	Salaried Employee	25
	Daily worker/ Daily wage earner	16
	Self-employed/Business owner/Professional	58
	Other	1
	Total	100
Annual Income	Up to 1 lakh	40
	1-5 lakh	44
	Above 5 lakh	16
	Total	100

Source: Authors' Own Compilation

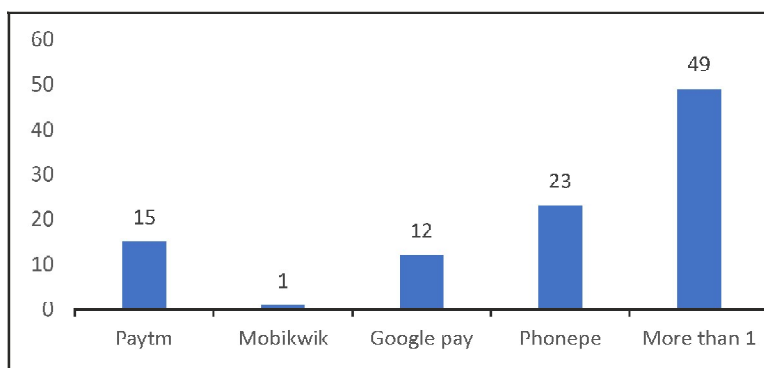


Figure 3: Responses of the Mobile Application for UPI

Source: Authors' Own Compilation

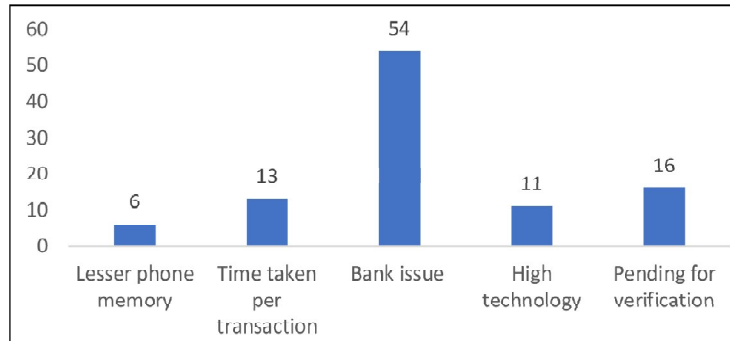


Figure 4: Technical Factors Influencing while using UPI

Source: Authors' Own Compilation

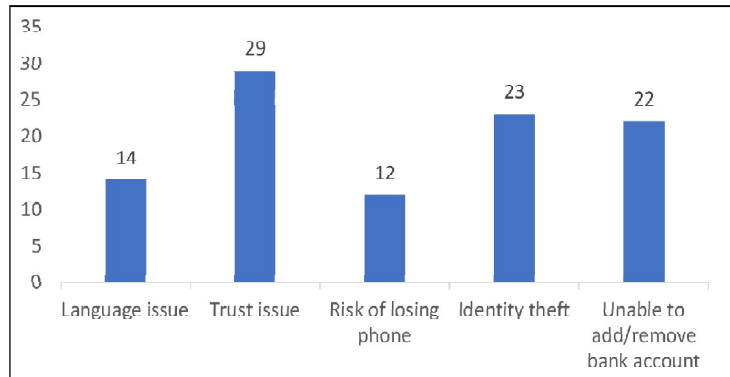


Figure 5: Personal Factors Influencing while using of UPI

Source: Authors' Own Compilation

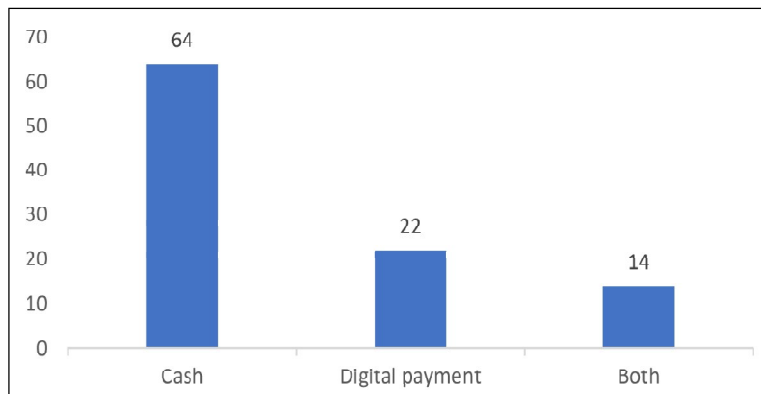


Figure 6: Money Received Modes from Customers

Source: Authors' Own Compilation

Figure 3 depicts that out of the 100 respondents, 49 use more than one application for UPI payments, with PhonePe being the most commonly used by 23 respondents. On the other hand, MobiKwik is less popular among the respondents. Figure 4 shows that the majority of respondents, 54%, face technical issues related to bank server errors while using UPI applications. On the other hand, only a small fraction of the respondents, 11%, experience issues related to lesser internal memory. Figure 5 depicts that many respondents have trust issues for security and privacy reasons. Taking an overall frequency, the other aspects such as language issues, risk of losing a phone, identity theft, and inability to operate a bank account are hindrances that respondents face and cannot be ignored. Figure 6 represents the vendors (64% of respondents) that receive their payment mostly through cash, 22 respondents receiving money digitally, and 14 received money by cash and digital payment.

Table 2: Paired Sample T-Test

	<i>Variable</i>	<i>Std. Error Mean</i>	<i>T value</i>	<i>Sig. (2-tailed)</i>
Pair 1	PE - A	0.139	5.990	0.000
Pair 2	EE - A	0.174	4.534	0.0000
Pair 3	SI - A	0.135	0.074	0.941

Source: Authors' Own Compilation

PE- Performance Expectancy, EE-Efforts Expectancy, SI- Social Influence, A- Age

H1: Performance expectancy has a significant impact with the Age while using UPI: T value = 5.990 & P value ≤ 0.05

H2: Effort expectancy has a significant impact with the Age while using UPI, T value = 4.534 & P value ≤ 0.05

H3: Social Influence has no positive impact with the Age while using UPI, T value = 0.074 & P value ≥ 0.05

Table 3: Paired Sample T-Test

		<i>Std. Error Mean</i>	<i>T value</i>	<i>Sig. (2-tailed)</i>
Pair 1	PE - O	0.154	3.820	0.000
Pair 2	EE - O	0.155	3.542	0.001
Pair 3	SI - O	0.142	-1.619	0.109

Source: Authors' Own Compilation

PE- Performance Expectancy, EE-Efforts Expectancy, SI- Social Influence, O- Occupation.

H1: Performance expectancy has a significant impact on the Occupation while using UPI: T value = 3.820 & P value ≤ 0.05

H2: Effort expectancy has a significant impact on the Occupation while using UPI, T value = 3.542 & P value ≤ 0.05

H3: Social Influence has no positive impact on the Occupation while using UPI, T value = -1.619 & P value ≥ 0.05

7. Conclusion

The study has adopted a theoretical model for knowing the impact of factors, namely performance expectancy, efforts expectancy, and social expectancy with occupation and age, to better understand the perception and adaptability of UPI by petty vendors in the Delhi NCR region. We have found that performance expectancy and effort expectancy factors have affected petty vendors while using UPI, but social influence did not much affect petty vendors. UPI allows petty vendors to make quick payments. In addition, Petty vendors don't face any major problems while using UPI. This study shows that petty vendors positively respond to a Unified payment interface, and there is a relationship between occupation and age. Educated people use UPI services, and most of the respondents are younger. UPI is a trendy and most preferred payment service among vendors in the Delhi NCR region. It makes payment easy to transfer, quick, and hassle-free. Therefore, it is concluded that the petty vendors of Delhi NCR are immensely benefited from the transactions or payments received from the customers. The study's implications suggest that service providers should focus on enhancing the performance and effort expectancy factors to encourage more petty vendors to use UPI services. Furthermore, the study shows that education and age play a vital role in adopting UPI by petty vendors. Hence, policymakers and service providers should focus on increasing awareness and educating people about the benefits of UPI, particularly among the older and less-educated population.

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