

## Adaption of UPI payments in small retail stores in Nagercoil City, Tamil Nadu

M. Nithya \*

*Department of Commerce, Yadava College, Madurai Kamaraj University, Madurai, Tamil Nadu. India.*

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### Abstract

Unified Payments Interface (UPI) is an Indian instant payment system developed by the National Payments Corporation of India (NPCI) in 2016. Unified payments interface (UPI) is a system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing and merchant payment into one hood. The interface facilitates inter-bank peer-to-peer (P2P) and person-to-merchant (P2M) transactions. It is used on mobile devices to instantly transfer funds between two bank accounts. The mobile number of the device is required to be registered with the bank. The UPI ID of the recipient can be used to transfer money. It runs as an open-source application programming interface (API) on top of the Immediate Payment Service (IMPS), and is regulated by the Reserve Bank of India (RBI). Indian Banks started making their UPI-enabled apps available on the Google Play Stores on 25 August 2016. It is one of the most widely used payment systems in the world, in terms of number of users and transactions. As of November 2022, the platform had over 300 million monthly active users in India. The proportion of UPI transactions in total volume of digital transactions grew from 23% in 2018–19 to 55% in 2020–21 with an average value of ₹1,849 per transaction. It enabled over 2,348 transactions every second in 2022.

**Keywords:** UPI; IMPS; P2P; NPCI; Digital Transaction; Mobile Application

### 1. Introduction



- **Product type** Instant inter-bank payment system
- **Owner** National Payments Corporation of India
- **Produced by** National Payments Corporation of India
- **Country** India
- **Introduced** 11 April 2016; 7 years ago
- **Website** [upichalega.com](http://upichalega.com)

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\* Corresponding author: M. Nithya

users in India. The proportion of UPI transactions in total volume of digital transactions grew from 23% in 2018–19 to 55% in 2020–21 with an average value of ₹1,849 per transaction. It enabled over 2,348 transactions every second in 2022.

In Aug 2023, there were several news reports and articles were published about the BFSI sectors. Data from NPCI shows that 10.5 billion transactions were recorded on the platform in August, up from 9.9 billion in July 2023. As of August 2023, UPI has crossed 10 billion transactions. UPI also recorded ₹15.7 lakh crore in August, slightly higher than the

₹15.3 lakh crore record for July. In FY 2023, the value of annual transactions reached \$1.7 trillion, out of which \$380 billion is in merchant payments. India has shared its UPI technology with many countries including France, Australia, Singapore, UAE, Saudi Arabia, Oman, Nepal, Bhutan, Sri Lanka and others.

### *Scope of the study*

The scope of a study on the adaption of UPI payments in small retail stores could include factors such as

- Analyzing the current usage of UPI payments among small retail stores.
- Identifying barriers to adaption, such as infrastructure requirements, technological literacy, and regulatory concerns.
- Investigating the benefits of adapting UPI payments, including cost savings, convenience, and potential for increased sales.
- Examining strategies for promoting UPI adaption among small retailers, such as training programs, incentivized schemes, and government initiatives.
- Assessing the impact of UPI adaption on business operations, customer satisfaction, and financial performance.
- Comparing the adaption of UPI payments with other payment methods to understand its relative advantages and disadvantages.
- Exploring future trends and developments in UPI technology and its implications for small retail business.

Overall, the study aims to provide insights into the challenges and opportunities associated with the adaption of UPI payments in small retail stores and to offer recommendations for maximizing its benefits.

### *Statement of the problem*

- The study intends to focus on the process of adaption of UPI (Unified Payments Interface) payment services by small retail shops. It seeks to explore and emphasize how these retail establishments have integrated and adjusted to using UPI as a payment method.
- The study aims to provide insights into how retail stores utilize UPI (Unified Payments Interface) payments in their day-to-day transactions. It seeks to explore and elucidate the specific ways in which UPI payment services are integrated into the routine operations of small retail stores.
- The study aims to investigate whether the adaption of the new payment system, namely UPI (Unified Payments Interface), has had any discernible impact on the operations and performance of small retail stores.

### *Objectives of the study*

The major objectives of the study are listed below;

- To analyze demographic factors of the users of UPI payments in small retail stores in Nagercoil city.
- To analyze the awareness level of using Unified Payment System in small retail stores.
- To examine the adaption level and satisfaction level of UPI payments in small retail stores.
- To identify the various problems faced by the users while using the UPI payments in small retail stores.
- To offer suggestions to overcome the problems.

### *Limitations of the study*

The limitations of a study on the adaption of UPI payments in small retail stores could include:

- The sample size is small or not diverse enough; it may not accurately represent the entire population of small retail stores in Nagercoil. This can limit the generalizability of the findings.
- There could be issues such as response bias, interviewer bias, or inaccuracies in self-reported data that could affect the reliability of the findings.

- The study might have been conducted over a short period, which could limit the understanding of long-term trends and factors influencing UPI adaption in small retail stores.
- Some variables relevant to UPI adaption, such as stores size or customer preferences, may not have been adequately measured or considered in the analysis.

### *Hypotheses of the study*

- Hypothesis -1
  - H0: There is no significant relationship between the gender of the respondents and highest adaption rate of UPI payments among small retail store sectors
  - H1: There is an significant relationship between the gender of the respondents and highest adaption rate of UPI payments among small retail store sectors
- Hypothesis -2
  - H0: There is no significant relationship between the age of the respondents and highest adaption rate of UPI payments among small retail store sectors
  - H1: There is an significant relationship between the age of the respondents and highest adaption rate of UPI payments among small retail store sectors
- Hypothesis -3
  - H0: There is no significant relationship between the education qualification and highest adaption rate of UPI payments among small retail store sectors
  - H1: There is an significant relationship between the education qualification and highest adaption rate of UPI payments among small retail store sectors
- Hypothesis -4
  - H0: There is no significant relationship between the area and highest adaption rate of UPI payments among small retail store sectors
  - H1: There is an significant relationship between the area and highest adaption rate of UPI payments among small retail store sectors.
- Hypothesis -5
  - H0: There is no significant relationship between the percentage of total transactions are conducted using UPI payments and highest adaption rate of UPI payments among small retail store sectors.
  - H1: There is an significant relationship between the percentage of total transactions are conducted using UPI payments an highest adaption rate of UPI payments among small retail store sectors.

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## **2. Methodology of the study**

### **2.1. Nature of research design**

In this study, mixed-method research design combining both quantitative and qualitative approaches, to comprehensively investigate the adaption of UPI payments in small retail stores.

### **2.2. Period of the study**

The primary data were collected during January 2024 to April 2024.

### **2.3. Source of data**

#### *2.3.1. Primary data*

Primary data for this research project was gathered through surveys and interviews conducted among participants, enabling the direct collection of relevant information specific to the study objectives.

#### *2.3.2. Secondary data*

Secondary data, comprising information gathered from previously conducted studies, databases, and authoritative reports, supplemented the primary research findings, enriching the depth and breadth of analysis in this study.

## 2.4. Sampling design of the study

### 2.4.1. Questionnaire development and instruments

The project report details the systematic process of developing a robust questionnaire, meticulously tailored to align with research objectives. Serving as the primary instrument for data collection, the questionnaire ensures the acquisition of reliable insights, thereby facilitating the comprehensive analysis necessary to address the study's objectives effectively and draw meaningful conclusions.

### 2.4.2. Population and sample

The target population is defined as follows

- Elements
  - The population comprises all small retail stores operating within the geographic boundaries of Nagercoil city, constituting the target group for understanding UPI payment adaption trends in the local retail sectors.
- Extent and sample size
  - The study was carried in Nagercoil city. 120 out of 1000 respondents were participated in this study.
  - Utilizing a convenient sampling approach, a subset of small retail stores in Nagercoil city will be selected conveniently for inclusion in the study. This method ensures every stores in the population has an equal chance of being chosen, providing unbiased representation and facilitating generalization of findings.
  - A sample of 1000 out of 120 respondents was taken into account for finding the adaption of Unified Payment Interface in small retail stores.

## 2.5. Data Collection

For data collection on the adaptation of UPI payments in small retail stores, a combination of quantitative and qualitative methods can be employed to gather comprehensive insights. Here's a brief overview of potential data collection methods:

### 2.5.1. Surveys

Develop structured questionnaires to collect quantitative data on UPI payment adaption rates, usage patterns, perceived benefits, and challenges among small retail stores owners. Surveys can be administered in-person or online to reach a wider audience efficiently.

### 2.5.2. Interviews

Conduct semi-structured interviews with a subset of small retail stores owners to delve deeper into their experiences, motivations, and barriers related to UPI payment adaption. These qualitative interviews can provide nuanced insights and allow for exploration of individual perspectives.

### 2.5.3. Observations

Observe small retail stores operations to understand how UPI payments are integrated into their daily transactions. Direct observation can provide valuable context and uncover practical challenges or innovations in UPI usage within retail settings.

### 2.5.4. Document Analysis

Review existing documents such as sales records, financial statements, and customer feedback forms to supplement primary data collection. Analysing these documents can provide additional quantitative data on UPI transaction volumes and trends over time.

### 2.5.5. Field Studies

Conduct field studies to interact with small retail stores owners and customers in their natural environment. This hands-on approach allows researchers to gain first-hand experience and gather real-time feedback on UPI payment experiences and preferences.

## 2.6. Data description

The data for the adaptation of UPI payments in small retail stores comprises both quantitative and qualitative information. Quantitative data includes metrics such as UPI transaction volumes, frequency of UPI usage, average transaction values, and adaption rates among small retail stores. Qualitative data encompasses insights gathered from interviews, surveys, and observations, capturing perceptions, motivations, challenges, and innovations.

## 2.7. Data collection procedure

- The method used for the data collection was a face-to-face interview, observations, field study using a structured quantitative and qualitative questionnaire.
- Convenient sampling method was used for collecting the data to the respondents who were the small retail stores owners.
- 120 respondents were participated in this survey.

## 3. Review of literature

The review of literature is an overview of the previously published works on a specific topic. It provides an overview of current knowledge, allowing the researcher to identify relevant theories, methods, and gaps in the existing research.

Abebe (2020) had a study on factors affecting UPI Payment adaption by merchants in Ethiopia. The result suggests that relative advantage, ease of use, usefulness, attitude, trust, risk/security and cost are factors that affect mobile payment adaption positively and significantly. Whereas compatibility is found not significant for merchant's adaption of mobile payment systems in Ethiopian context.

Bijin Philip (2019) Made a study on impact of UPI on Customer Satisfaction. The study focused on to identify the customer preference towards Unified Payment interface and analyze the impact of UPI services on satisfaction of the customers.

Lee (2019) in their recent study found out the reciprocal relationship between user perception and retailer perception on platform-based mobile payment service. This study argue that the mass adaption of mobile payments will only be triggered when the benefits - both perceived and real become clear to consumers and merchants. With the development of the smartphone and mobile Internet, a platform-based UPI payment service has emerged that can handle all banking services with a smartphone alone.

## 3.1. Data analysis and interpretation

**Table 1** Gender of Respondents

Gender	No. of Respondents	Percentage%
Male	63	52.5
Female	57	47.5
Total	120	100.0

Source: Primary data

### 3.1.1. Interpretation

In this table, the highest percentage is attributed to male respondents, comprising 52.5% of the total sample. Conversely, female respondents represent the lowest percentage at 47.5%. The data suggests a slight male majority in the surveyed population, with a relatively balanced gender distribution overall.

**Table 2** Age of the respondents

Particulars	No. of Respondents	Percentage%
Below 25 years	56	46.7
26 - 35 years	25	20.8
36 - 45 years	17	14.2
46 - 55 years	16	13.3
Above 56 years	6	5.0
Total	120	100.0

Source: Primary data

**3.1.2. Interpretation**

This table presents the age distribution of respondents. The majority, 46.7%, fall below 25 years old, while 20.8% are aged between 26 and 35 years. 14.2%, 13.3%, are 36-45 years, 46-55 years of the respondents, respectively. The lower proportions 5.0% of respondents falling within the age of above 56 years. Overall, it reflects a varied representation across different age groups in the surveyed population.

**Table 3** Education Qualification

Particulars	No. of Respondents	Percentage %
Not formal education	11	9.2
SSLC	15	12.5
HSC	13	10.8
College level	71	59.2
Diploma	10	8.3
Total	120	100.0

Source: Primary data

**3.1.3. Interpretation**

In this table, the highest percentage of respondents, at 59.2%, have attained education at the college level. Conversely, the lowest percentage is attributed to respondents with Diploma holders, comprising 8.3% of the total. SSLC, HSC, and no formal education represent 12.5%, 10.8%, and 9.2% of respondents, respectively. Overall, it showcases a predominant presence of college-educated individuals among the surveyed population.

**Table 4** UPI app that prefer more to do transactions

Particulars	No. of Respondents	Percentage%
Google pay	56	46.7
Phone pe	23	19.2
Paytm	29	24.2
Amazon pay	9	7.5
Others	3	2.5
Total	120	100.0

Source: Primary data

### 3.1.4. Interpretation

Among UPI app preferences for conducting transactions, Google Pay emerges as the highest with 46.7% of respondents opting for it, indicating its widespread popularity and user trust. Following behind, PhonePe, Paytm and Amazon Pay hold 19.2% and 24.2% and 7.5% respectively, highlighting a competitive landscape with multiple popular options. Other UPI apps have lower preferences at 2.5%. This distribution underscores the diverse choices available to users within the UPI ecosystem.

**Table 5** Customer's inquiry about the acceptance of UPI payments

Particulars	No. of Respondents	Percentage%
Frequently	43	35.8
Occasionally	43	35.8
Rarely	27	22.5
Never	7	5.8
Total	120	100.0

Source: Primary data

### 3.1.5. Interpretation

Inquiries about the acceptance of UPI payments vary among customer's, with the highest proportion, at 35.8%, reporting frequent inquiries, suggesting a strong interest in utilizing this payment method. Similarly, another 35.8% reported occasional inquiries, indicating a consistent level of interest among this group. Conversely, the lowest proportion, at 5.8%, reported never making inquiries, suggesting a small segment either unaware of or uninterested in UPI. Falling in between, 22.5% reported rare inquiries, indicating a moderate level of interest among this subset.

**Table 6** Percentage of total transactions conducted using UPI payments

Particulars	No. of Respondents	Percentage%
Less than 25%	19	15.8
26% - 50%	44	36.7
51% - 75%	32	26.7
More than 76%	25	20.8
Total	120	100.0

Source: Primary data

### 3.1.6. Interpretation

Among respondents, the highest proportion, at 36.7%, indicated that 26% to 50% of their total transactions are conducted using UPI payments, reflecting a significant adaption rate. Conversely, the lowest proportion, at 15.8%, reported less than 25% of transactions through UPI, suggesting a lower level of adaption among this subset. Falling in between, 26.7% of respondents reported that 51% to 75% of their transactions utilize UPI, indicating a substantial reliance on this payment method. With 20.8%, a notable portion reported that more than 76% of their transactions are conducted using UPI payments, highlighting a considerable integration of UPI into transaction processes.

**Table 7** Main reason for adapting UPI payments in small retail stores

Particulars	No. of Respondents	Percentage%
Faster transaction processing	43	35.8
Lower transaction costs compared to other payment methods	40	33.3
Increased customer convenience	29	24.2
Government incentives related mandates	8	6.7
Total	120	100.0

Source: Primary data

### 3.1.7. Interpretation

Among the respondents, the highest percentage, at 35.8%, identified faster transaction processing as the most significant benefit of UPI adaption, reflecting a prioritization of efficiency. Following closely, 33.3% cited lower transaction costs compared to other payment methods, indicating a strong consideration for cost-effectiveness. Conversely, government incentives and mandates received the lowest impact, with only 6.7% of respondents acknowledging their impact, suggesting that while present, they are not the primary drivers of UPI adaption. Increased customer convenience falls in the middle, at 24.2%, suggesting it is recognized but not as prominent as transaction speed and cost savings.

### 3.2. Chi -Square Test

Gender of the respondents and highest adaption rate of UPI payments among small retail store sectors

- H0: There is no significant relationship between the gender of the respondents and highest adaption rate of UPI payments among small retail store sectors
- H1: There is a significant relationship between the gender of the respondents and highest adaption rate of UPI payments among small retail store sectors

**Table 8** Chi -Square Test

Gender		Highest adaption rate of UPI payments among small retail store sectors			Total
Male		Low	Moderate	High	
	Count	17	15	31	63
	%	27.0%	23.8%	49.2%	100.0%
Female	Count	20	11	26	57
	%	35.1%	19.3%	45.6%	100.0%
	Count	37	26	57	120
Total	%	30.8%	21.7%	47.5%	100.0%
	Chi-square	1.000			
P value		0.607			

The chi-square was performed to examine the relationship between the gender of the respondents and highest adaption rate of UPI payments among small retail store sectors. From the table the significance level is 0.607 ( $\rho=0.60$ ), which is more than 0.05. Hence, we accept the null hypothesis and reject the alternative hypothesis (H0). Therefore, there is no significant association between relationship between the gender of the respondents and highest adaption rate of UPI payments among small retail store sectors.

#### 4. Findings

From the above analysis it is found that,

- Majority (52.5%) of respondents are male.
- Majority (46.7%) of respondents are below 25 years old.
- Majority (59.2%) of respondents are educated at college level.
- Majority (47.5%) of respondents are from urban regions.
- Majority (52.5%) of respondents earn less than Rs30,000 per month.
- Majority (46.7%) of respondents prefer the google pay for their UPI transactions.
- Majority (35.8%) of respondents suggest a strong interest in utilizing this UPI payment method.
- Majority (50.8%) respondents deals smaller value transactions on a daily basis UPI.
- Majority (46.7%) of respondents conducting between 101 to 500 transactions monthly in retail stores.
- Majority (36.7%) of respondents indicated that 26% to 50% of total transactions are conducted using UPI payments.
- Majority (36.7%) of respondents are mostly satisfied with the using UPI payment at small retail stores.
- Majority (44.2%) are indicating upgrading their infrastructure to accept UPI payments, small retail stores.
- Majority (35.8%) respondents adapting UPI payments in their small retail stores to the reason for faster transaction processing.
- Majority (42.5%) of respondents are identified technical issues or connectivity problems in UPI payment at small retail stores.
- Majority (40.8%) of respondents find that the customer's are spending more per transaction in small retail stores.
- Majority (52.5%) of respondents are in "Neutral "category in the overall experience of using UPI payments in small retail stores.
- Majority (38.3%) respondents attribute 21% to 30% of total revenue contributed by UPI
- Majority (37.5%) of respondents reports a duration for the average transaction time of UPI payment is 1 to 2 minutes.
- Majority (33.3%) respondents believe UPI payment will become dominate payment method for small retail stores in the future.
- Majority (39.2%) of respondents likely to recommend UPI payments to owners of other small retail stores.
- Majority (29.2%) of respondents identified the benefit of UPI payment is "by offering cashback incentives" at small retail stores during peak business hours.
- Majority (35.0%) of respondents find 31.0% to 50.0% are the repeat customer's of using UPI payments in small retail stores.
- Majority (35.8%) of respondents are think the main reason for hesitant to adapt UPI payments in small retail stores is "Lack of infrastructure".
- Majority (42.5%) of respondents are suggested "Better integration with existing payments system" to improving adaption of UPI payments in small retail stores.
- The chi-square was performed to examine the relationship between the gender of the respondents and highest adaption rate of UPI payments among small retail stores sectors. From the table the significance level is 0.607 ( $p=0.60$ ), which is more than 0.05. Hence, we accept the null hypothesis and reject the alternative hypothesis ( $H_0$ ). Therefore, there is no significant association between relationship between the gender of the respondents and highest adaption rate of UPI payments among small retail stores sectors.
- The chi-square was performed to examine the relationship between the customer satisfaction level of using UPI payments in small retail stores and monthly UPI transaction process in retail stores. From the table the significance level is 0.040 ( $p=0.04$ ), which is less than 0.05. Hence, we reject the null hypothesis and accept the alternative hypothesis ( $H_1$ ). Therefore, there is no significant association between relationship between the customer satisfaction level of using UPI payments in small retail stores and monthly UPI transaction process in small retail stores.
- The chi-square was performed to examine the relationship between the education qualification and highest adaption rate of UPI payments among small retail stores sectors. From the table the significance level is 0.031 ( $p=0.03$ ), which is less than 0.05. Hence, we reject the null hypothesis and accept the alternative hypothesis ( $H_1$ ). Therefore, there is no significant association between relationship between the education qualification and highest adaption rate of UPI payments among small retail stores sectors.

### *Suggestions*

- Educate Stores Owners to Provide training and materials explaining the benefits and ease of UPI payments.
- Encourage adaption by offering discounts or other incentives for customers who pay via UPI.
- Demonstrate Simplicity to show how simple and quick UPI transactions can be compared to cash or card payments.
- Promote Security to be highlight the security features of UPI payments to reassure stores owners and customers.
- Share success stories of other small retailers who have successfully adapted UPI payments.
- Advocate for government initiatives that promote digital payments and provide subsidies for adapting UPI systems.
- Organize community events or roadshows to raise awareness about the benefits of UPI payments.
- Collaborate with banks to offer preferential loan rates or credit facilities to small retailers adapting UPI payments
- Create interactive online forums or social media groups where small retailers can share their experiences and tips related to UPI payments.
- Offer technical support services to troubleshoot any issues faced by small retailers with UPI payment systems.
- Organize competitions or contests with prizes for small retailers who achieve the highest UPI transaction volumes.
- Establish a dedicated helpline or customer support team to assist small retailers with any queries related to UPI payments.
- Establish partnerships with local universities or vocational schools to include UPI payments in their curriculum for business students.
- Implement a feedback system to gather suggestions and improvement ideas from small retailers using UPI payments.

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## **5. Conclusion**

The study of adaption of UPI payments in small retail stores has attempted to understand impact of new age digital payment in businesses of retail stores. In conclusion, the adaption of UPI payments in small retail stores marks a significant leap forward in modernizing the retail landscape and revolutionizing the way transactions are conducted. It was found that UPI payment method does have a greater impact on increasing the business and more convenient for customers for the transaction. From the analysis we came to know that the tenure of usage and years of business does play a vital role in making decision and is the reason to adapt the UPI payment method. This transformative shift is driven by a multitude of compelling factors, all converging to reshape the dynamics of commerce at its core. It reduces the dependency on physical cash, mitigating risks associated with handling large sums of money and enhancing security by minimizing the likelihood of theft and fraud. This shift also fosters financial inclusion, extending the reach of formal banking services to previously underserved communities and empowering individuals from all walks of life to participate in the digital economy. Furthermore, the adaption of UPI payments in small retail stores has broader implications for economic growth and development. It contributes to the formalization of the economy, bolstering transparency and accountability in financial transactions.

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### **Compliance with ethical standards**

#### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

#### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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