

**Unified Payment Interface (UPI) – Economy Transformer for
Small Businesses in India**

Research dissertation presented in partial fulfilment of the requirements
for the degree of
MSc in International Business Management

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01st July 2023

Candidate Declaration

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I certify that the dissertation entitled: Unified Payment Interface (UPI) –
Economy Transformer for Small Businesses in India

submitted for the degree of: **MSc in International Business Management** is the
result of the my own work and that where reference is made to the work of
others, due acknowledgment is given.

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Dedication

I would like to dedicate this research thesis to my loving wife, my inspiring son, and my dearest parents without whom my life would have been not easy. To my loving wife's, your unwavering belief in me and endless encouragement have been the fuel that propelled me forward. I am grateful for your patience, understanding, and unwavering support throughout this challenging yet fulfilling journey.

To my beloved son, you are the most inspiring person in my life who brightens my days and the reason I strive to make a positive impact. Your infectious laughter and boundless curiosity inspire me to continuously seek knowledge and make a difference. This thesis is dedicated to you, as a testament to my love and commitment to building a better future for you.

My parent's dedication, guidance, sacrifices, unwavering faith in my abilities have been the foundation of my success. Their constant support and belief in my dreams have given me the strength to overcome obstacles and persevere. This thesis is a tribute to their unconditional love and values that has instilled in me, guiding me throughout my research journey.

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Abstract

This research paper explores the impact of Unified Payment Interface (UPI) payments on small businesses in India. Through a comprehensive literature review, conceptual framework, and data collection from small businesses, this research provides insights into the benefits, challenges, and behaviour associated with UPI payments. The study focuses on understanding how UPI payment have reshaped and enhanced small business operations and their implications for financial inclusion, economic growth, and digital transformation.

Through a mixed-methods approach, quantitative and qualitative data are collected from small business owners with the help of survey questionnaires determining usage patterns, perceived benefits, and challenges from using UPI payments.

The findings of this study highlight the significant positive impact of UPI payments on small businesses, enabling them to adapt to the digital economy quicker and compete more effectively in the market. The study explains the role of UPI in promoting financial inclusion, facilitating business growth, and reducing cash dependency, eventually helping the Government to move towards Cashless Economy. However, it also highlights the challenges related to the security, slow progress in network infrastructure, and customer adoption that needs to be addressed for the widespread adoption and sustainable use of UPI by small businesses.

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List of Abbreviations

Abbreviations	Definition
AEPS	Aadhar Enabled Payment System
BHIM	Bharat Interface for Money
IBA	Indian Banks' Association
IMPS	Immediate Payment Services
INR	Indian Rupees
MoU	Memorandum of Understanding
NEFT	National Electronic Fund Transfer
NIPL	NPCI International Payment Limited
NPCI	National Payment Corporation of India
P2P	Peer-to-Peer
P2PM	Peer-to-Peer Merchant
POS	Point-of-Sale
RBI	Reserve Bank of India
RTGS	Real Time Gross Settlement
UPI	Unified Payment Interface
UPI ID	Unified Payment Interface Identification
VPA	Virtual Payment Address

1 Introduction

1.1 Overview

This study paper is based on the online digital payment system in India called Unified Payment Interface (UPI), developed, and implemented by National Payment Corporation of India (NPCI), which is an operator, also known as bank-end solution provider, for retail payments and settlements systems, a joint initiative by Reserve Bank of India (RBI) and Indian Banks' Association (IBA), to create robust and seamless payment and settlement systems in India. The pilot UPI system was launched on 11th April 2016, whereas banks started their front-end interface from August 2016. UPI is a real-time payment system which enables peer-to-peer bank transfers across any banks who has adapted to the UPI payment system. It has single two-factor authentication process to transact between accounts and works on unique VPA avoid sharing any bank details to transact which makes it more safe and secure digital method to transfer payments or money.

The UPI interface could only be used through smartphone application which made it popular amongst youth in its initial phase. With the help of evolution of smartphones, technological innovations, and vast availability of internet, UPI system widely helped smartphone users, numerous financial institutions, and specifically banks to conduct effective, fast, and hassle-free payment across the nation without even visiting the bank or any financial institutions. The aim was to achieve practise of cashless economy where the government had strong urge to reduce the cash transactions across the nation to build stronger economy and eliminate black money and fake currency in circulation. The implementation was done effectively with carefully planned steps to avoid panic amongst the citizens and make sure they are inclined towards using any digital form of payments.

1.1 Research Purpose

While the UPI payment system has helped and facilitated at various levels of the country's economy ranging from large scale organizations to the smallest shop vendor in smallest village, this research paper will carefully study about the effectiveness of UPI amongst small retail vendors and small-scale online retailers. We will also study why UPI is getting accepted by various other countries, while many have implemented to a large extent whereas many other countries have expressed their interest in implementing this payment system in their country.

1.2 Significance of the Study

As we will only study about small retail vendors and online retailers, we will be able to understand the effectiveness of the payment system in its purest form as this section of businesses were mainly cash-driven and are also the major benefactor of UPI digital payment. Since the aim of the central bank was to implement cashless economy for smooth economical functioning of the country, the small retail vendors were only accepting physical cash from consumers while online retailers were only had the option of netbanking payment system. In all cash transactions, the central bank had no control over the flow of economy where infusion of fake currency made it even more difficult. The netbanking payment system for online retailers were performing well however had many shortcomings to conduct business.

1.3 Research Objective

The research objective is to understand the change in payment processing paradigm with the help of UPI payment system and how it helped the small retail vendors and online retailers to carryout daily businesses with ease. We will also understand how the introduction of UPI payment systems benefited these players initially and how it helped the central bank keep track of the economy flow. We will also understand about adaptability of the UPI payments by other

countries after analysing the success of the payment system in India and reasons behind those adaptations.

1.4 Structure of the Study

1. Introduction

- Background of the research topic
- Research objectives and questions
- Significance and relevance of the study

2. Literature Review

- Existing literature on UPI payments and its technicalities
- Types of digital payments available
- Key Benefits of UPI
- Usages and statistics since its inception
- Global acceptance and recognition

3. Research Methodology

- Research philosophy and approach
- Research strategy
- Primary data collection and analysis strategy

4. Data Analysis and Findings

- Presentation and analysis of quantitative data collected through surveys
- Integration of the findings with the existing literature

5. Conclusion

- Discussion of limitations and constraints encountered during the research process
- Interpretation of the findings in relation to the research objectives and research questions
- Contribution through the research and reflection from the research

6. References

- List of all the sources cited in the study using appropriate referencing style

7. Appendices

- List of survey questionnaires

2 Literature Review

2.1 Overview

A Unified Payment Interface (UPI) was launched in April 2016, developed by National Payment Corporation of India (NPCI) and regulated by the Reserve Bank of India (RBI) which is the central bank of India (GANTI, 2021). A UPI is a smartphone application allowing users to transfer money between bank accounts (Chaudhary, 2022). Being a single-window mobile payment application, users can link all their bank accounts on the application using two-factor authentication while avoiding revealing any of their bank account details and associated credit/debit cards while paying or receiving money (GANTI, 2021). It has proven to be one of the safest and secured method of transferring money between two parties and eliminates the use of physical cash or using online banking platforms (Tamuli, 2023).

UPI fundamentally uses existing payment systems such as Immediate Payment Service (IMPS) and Aadhar Enabled Payment System (AEPS) for seamless payment settlement between the accounts (Shome, 2022). It works on push (pay to another account) and pull (receive from another account) transactions and works using QR codes between the accounts. Each account is facilitated with unique QR code for ease of identification and routing payment to right account (Sajumon, 2022).

A single account can be created with ease using unique mobile phone number detecting bank accounts linked to that phone number and giving options to setup first UPI account. Each account has unique UPI ID in the form of yourname@bankname and then add different bank accounts, debit cards, net banking, and credit cards (newly launched) (Chaudhary, 2022).

While the central bank was able to track and analyse the transactions made through bank accounts, it was practically difficult to track the usage and flow of cash which was also making it difficult for the RBI and the government to make important short and long-term decisions. The RBI also had suspected the excessive cash running in the economy making it stronger to believe the existence of black money or fake currencies in the country (Sharma, 2020). The

government along with RBI laid a plan to tighten the usage of cash and hence announced the demonetization of INR 500- and 1000-rupee bills from the mid-night of 08th November 2016. This consisted of 86% of total currency in circulation as on the demonetization announcement (Patnaik, 2019). All the citizens were given limited time window to deposit all the demonetized bills to the bank with immediate effect and that no trade must be undertaken using the old bills. The old bills of INR 500 were replaced with newly designed and printed ones, whereas INR 1000 was discontinued across the nations and INR 2000 bills were launched to ease the cash flow in the country (Chawla *et al.*, 2019). Since the demonetization was implemented pan India, a severe shortage of cash was inevitable. RBI asked the banks to only allow account holders withdraw INR 2,500 during every banking day and strict traceability of cash was maintained ever since then. As UPI was launched just few months before the demonetization was announced, the government and RBI urged and encouraged citizens to use UPI based app BHIM (Bharat Interface for Money) which was developed and launched by NPCI. (NDTV.com, 2023)

The RBI also realized that major rural population of the country had no bank accounts and were only using cash for their living. Hence, the government decided to introduce Pradhan Mantri Jan Dhan Yojana, which was a program to offer bank accounts to population having low income and were out of purview from using bank accounts (Blakey, 2023). Low-cost banking services along with timely incentives directly from the government were offered and majority of the population were encouraged to use bank accounts as their primary medium to send or receive any payments. (Blakey, 2023)

2.2 Types of Digital Payment Methods

In principle, India has four different kinds of fund transfer mechanisms. Each are purpose driven and has caters to specific set of consumers. (MUTHYANOLLA, 2022)

1. National Electronic Fund Transfer (NEFT):

NEFT primarily has no minimum fund transfer limit however maximum limit are set by individual banks variable to the account types. The payment

could be transferred anytime of the day including off banking hours, weekends and even on public/bank holidays. However, the payments are processed in in batch of 30 minutes making this payment, which means payments made under NEFT are settled every 30 minutes cut-off time set by RBI. The payments under NEFT can be made online netbanking account or offline by visiting the bank. (Tambe and Jain, 2023b)

2. Real Time Gross Settlement (RTGS)

The minimum fund transfer limit under RTGS is INR 200,000 and has no upper fund transfer limit. It is available round the clock and settles the remittance in real-time. While this mechanism is available online and offline, individual banks have various rules to use this mechanism due to high value settlements. While majority of the bank permits only offline services for Savings account holders, many high fund value businesses have option for online services too. (TechTarget, 2020)

3. Immediate Payment Service (IMPS)

IMPS settlement mechanism has no minimum fund transfer limit however capped at INR 500,000. Unlike NEFT, it works in real time and free from any time bounded limit. IMPS can be processed only online mode and is majorly available for almost all account type holders. As UPI is based on IMPS mechanism, they have a lot in common. (Tambe and Jain, 2023a)

4. Unified Payment Interface (UPI)

Like IMPS, UPI too has no lower fund transfer limit, however is capped at INR 200,000. It is not time bounded and works in real time where most of the settlements are done in seconds and works seamlessly between accounts. While transfer through IMPS must be made using specific bank account interface, basically net banking, UPI payment can done using just one interface. One single window interface can be used for setting up various bank accounts for UPI payments, avoiding the hassle to switch between various bank interfaces. This mechanism made a huge difference in encouraging consumers to use UPI as their digital payment

methods and encouraged the goal of cashless economy. (Anand Adhikari, 2022)

2.3 UPI transforming Small Businesses

While UPI is the most preferred payment method in the country, it has transformed the payment making habits of youth of India. UPI has proven to have many advantages to small businesses across the nation which will help in boosting the country's economy in longer run. Some of the advantages of UPI to small businesses are mentioned below. (Tamuli, 2023)

Ease of use

This is one of the best features of UPI as it is extremely easy to use by any person irrespective of a person living in metro cities or rural areas. As most of the small business owners are not well educated, UPI helped them to transact in easiest way possible (Tamuli, 2023). A small business owner just needs to have a bank account and UPI ID to accept payments through UPI. While most of the banks provides UPI ID to the account holder along with the bank account, the business owner only needs to display a QR code to their customers to receive payments (Chaudhary, 2022). Pre-UPI, the business owners conducted business only on cash where they had to visit bank frequently to deposit money collected from business and then pay to their suppliers. With UPI, the payments made by customers directly gets deposited in their bank account avoiding all hassles to visit bank saving time and efforts (GANTI, 2021).

Low Transaction Fees

While heavy fees were charged to small business for accepting payment through debit or credit cards using POS machines, UPI charged a negligible fee for the services provided to small businesses whereas it is free for consumers (Canday, 2016). While Peer-to-Peer (P2P) transfers are free, Peer-to-Peer Merchant (P2PM) too will not attract any fee who has monthly inward stream of INR 50,000 or less. (Ray, 2023)

Real-time Processing

As UPI transfers money in real-time, the small businesses can manage their periodic cash flow efficiently and be clear of all the cash flow problems. The reason for real-time payment processing is because there are no middlemen involved at any stage and money is transferred from one bank account to another immediately (Tamuli, 2023).

Security

Unlike traditional payment systems, UPI is secured at all stages of the process. The user's UPI account is secured by personalized pin whereas all UPI transactions are backed by unique UPI PIN and are traceable. Additionally, all payments are performed through secured channels ensuring information protection seamlessly (Paytm, 2021).

Transaction Limits

UPI account holders has transaction limit for individuals as well as small businesses. While the individual has a per transaction threshold of INR 100,000 and daily threshold of INR 200,000, small businesses have threshold of INR 200,000 per transaction and INR 500,000 per day (Rastogi, 2022). The transaction value threshold helps the businesses to conduct business securely at all time (Tamuli, 2023)

Financial Inclusion

Majority of small businesses remained far from conducting businesses securely, UPI gave them opportunity to be part of the same financial environment and receive benefits from the banks for being associated with the banks (Rastogi, 2022). Previously the only way to stay connected with the bank was to own a POS equipment which attracted heavy charges which in turn discouraged many businesses to utilize banking services (Narayanan, 2021). UPI bought the unorganized business sector of India together with their UPI payment strategy to empower millions of smaller businesses across the nation (Tamuli, 2023).

2.4 UPI Apps

All banks registered under UPI have their UPI-enabled apps to allow bank holders send and receive money. However, there are third-party apps which are UPI-enabled for money transfers like Google Pay, PhonePe, BharatPe, Amazon Pay, and many more. Many of the third-party apps are like a wallet where several other services like gas and electricity bill payment, mobile recharges or payments, any more financial services. Many of these apps also have wallet facility if any user wants to avoid paying every time through UPI medium and pay directly through wallet.

Table 1 UPI Apps Major Transaction Volumes (April 2023)

Sr. No.	Application Name	Transactions	
		Volume (in millions)	Value (in millions)
1	Amazon Pay	53.44	53,510.70
2	Cred	45.70	207,295.60
3	Google Pay	3,109.24	4,740,490.00
4	HDFC Bank Apps	14.48	36,853.30
5	Paytm Payments Bank App	1,184.38	1,353,439.60
6	PhonePe	4,216.99	7,101,784.40
7	Whatsapp	14.83	13,190.10
8	Yes Bank App	34.45	121,510.00

(National Payment Corporation of India, 2023)

In the above table showing UPI transactions volumes for the month of April 2023, we see several leading apps handling enormous volumes of transactions in one month. As these statistics is pertaining to only one month, the annual volume of transactions per application is even higher and growing at a rapid rate. Also, we can clearly notice that the most popularly preferred application amongst all is PhonePe, Google Pay, and Paytm. The most interesting fact is that PhonePe and Paytm are purely Indian start-ups founded right after UPI was launched and are now processing enormous amount of transaction every month.

2.5 UPI Statistics and Data

Below table shows the total transaction volume and total transaction value done through UPI since its launch. It also shows the total number of banks accepting UPI services for their bank account holders. The numbers were recorded in every March of every year as India follows the April to March as their fiscal financial year. As UPI was launched in April 2016, hence March 2016 has no value (National Payment Corporation of India, 2023).

Table 2 UPI Transaction Volume and Value

Year	No. of Banks live on UPI	Transaction Volume (in Million)	Value (in INR Million)
2023	399	8,685.30	14,104,430.10
2022	314	5,405.65	9,605,816.60
2021	216	2,731.68	5,048,864.40
2020	148	1,246.84	2,064,623.10
2019	142	799.54	1,334,607.20
2018	91	178.05	241,726.00
2017	44	6.37	24,241.40
2016	21	0	0.00

*this data excludes the transactions having debit/credit to the same account for the month of August 2018 onwards

Observation: The above table clearly shows exponential growth in transaction volume and value whereas in 2021, the UPI transaction volume grew by 220% and value by more than 250% due to COVID-19. The years thereafter saw massive increase in usage of UPI amongst the consumers.

2.6 Global Acceptance of UPI

The NCPI International Payment Limited (NIPL) is the international arm for licensing UPI payment systems with other foreign countries (Bhardwaj, 2023). While many countries adopted UPI payment system during recent times, Bhutan was the first country to adopt QR-based UPI as their payment standard in July 2021 (Ghosh, 2023). Other countries such as Nepal, Bahrain, Oman, Singapore, France, UAE, Saudi Arabia and Maldives have already adopted UPI payment systems (Sharma, 2023).

The most important benefit the UPI payment system offers foreign countries is seamless cross-border transactions at reduced cost. This would empower small economy nations to participate globally and improve their nation's economy with reduced hassle (Mishra and Banerjee, 2022). NIPL partnered with several payment partners in the respective countries, the time of partnership and names of the partners in their respective countries are listed below (Bhardwaj, 2023). As UPI's backend technology is provided by NPCI, hence NPCI's international arm NIPL will be partnering with the front-end interface providers from respective countries in regulation with the local government's payment processing branch (Bhardwaj, 2023).

Table 3 Countries adapting UPI Payments

Announcement	Entity partnering with UPI network	Countries
Jul-21	Royal Monetary Authority of Bhutan	Bhutan
Sep-21	Monetary Authority of Singapore, PayNow	Singapore
Aug-21	Merchantrade Asia	Malaysia
Sep-21	Liquid Group	Singapore, Malaysia, Thailand, Philippines, Vietnam, Cambodia, Hong Kong, Taiwan, South Korea, Japan
Nov-21	Network International (NI)	UAE
Feb-22	Gateway Payment Services, Manam Infotech	Nepal
April-August 2022	LuLu Financial, NEOPAY (Mashreq Bank)	UAE
Jun-22	Lyra	France
August-September 2022	Terrapay, PayXpert	United Kingdom
Oct-22	Worldline	Netherlands, Belgium, Luxemburg, Switzerland
Oct-22	Central Bank of Oman	Oman

(Bhardwaj, 2023)

In July 2022, India was in discussion with 30 other countries to adapt to the UPI payment system in their country wherein countries like France, UAE and Singapore had already signed MoUs with India. This was said by the Minister of Electronics and Information Technology – Mr. Ashwini Vaishnav (Gautam, 2022).

There are several benefits of taking UPI global as listed below. (Online, 2023)

- Encouraging financial inclusions

Giving digital payment access to more people will improve country's economy and better traceability globally. Financial institutions can also offer people with better offers and services which was not possible earlier due to usage of traditional payment systems, causing barriers to the people.

- Enhancing international trades

International trades will become easier, faster, and economically convenient.

- Encouraging digital payments

Encouraging digital payments can help the country and its people reduce dependency on cash and give platform to the government to build better and sustainable economy in the long term.

- Effective and efficient remittances

While the traditional wire transfers attracted fees and additional costs with slower remittance services, UPI will help to make remittances easier due to its simple technology of peer-to-peer transfers.

- Digital payment literacy

India can help the world in building sustainable digital infrastructure to give better platform for digital payment processing. This will fill the gaps in the digital payment infrastructure and promote financial education globally.

2.7 Conceptual Framework

The core purpose of the UPI payment system is to develop a behavioural change amongst the citizens in shortest span of time to change their mindset from traditional payment systems to advance digital systems which will benefit everyone collectively in longer future.

1. Context

UPI payments are used by small businesses in its context include economic, technological, and regulatory environment.

2. Stakeholders

Largely, the key stakeholders for UPI payment system for small businesses includes small business owners, customers, financial institutions or banks, and national regulators.

3. Motivations

The motivation to use UPI payment system by small businesses include cost optimization, increased sales, convenience, and improved customer experience and loyalty.

4. Barriers

The key barrier to adoption of UPI payments by small businesses include trust, awareness, technical skills, and large-scale infrastructure.

5. Perceived benefits

The perceived benefits by small businesses related to UPI payment are reduced digital transaction costs, better customer relationships, and improved cash flow management.

6. Usage patterns

With the help of UPI payments, small businesses could increase the frequency of transactions and its efficiency, increase more products and services for customers, and overall business efficiency.

7. Recommendations

The most important recommendations for faster adoption of UPI payment amongst small businesses is to increase awareness amongst those businesses, build trust, provide training and technical support, and suggest developing new products and services. It important to make them aware about the customer satisfaction and loyalty for their own customers and steer the behaviour from traditional payment methods to advanced UPI payment method.

2.8 Conclusion

Based on the literatures reviewed, it is evident that UPI payments has revolutionized the payment ecosystem in India especially for small businesses and their customers. It has changed the way how small businesses conducted their business making it more accessible, faster, and cost-effective. All the key stakeholders played extremely important role in its entire lifecycle transforming the behaviour not just of businesses, including consumers adapting from traditional payment systems to digital ones. All the financial institutions and third-party apps helped in penetrating the UPI payment system reach its new milestone year-on-year and will even penetrate further to small cities, towns, and rural areas. The conceptual framework gives a comprehensive understanding of the key factors influencing UPI payments for small business. It explains its core purpose, key players, benefits, and recommendations for further influencing small businesses in adoption of UPI payments.

While UPI has emerged as game-changer in the payment ecosystem of India mainly targeting in organizing small unorganized businesses across the country, it eventually has potential to organize small businesses globally as well. The initial 4-5 years evidently proved its worth to global nations influencing them to adopt to UPI payments for improved economic efficiency in their own country and giving globalization opportunities to small businesses in their country. It is evident that technological and infrastructural challenges will be faced in future, however, a strong association between nations will help them implement UPI payment system in their country.

3 Methodology and Research Design

3.1 Overview

The research philosophy used for this research is positivism whereas the research approach is deductive approach. Both, qualitative and quantitative research methods are used to understand the objective of the research. While the quantitative research is done through original authentic sources, the qualitative research is being done through survey questionnaire which was sent to small businesses in India open to variety of business types.

3.2 Research Philosophy and Approach

The research approach given the objective is through deductive research approach. Based on certain data collection and analysis, a theory has been developed to gain holistic understanding about how UPI payments changed small businesses being conducted in India and including its global adoption.

The positivism research philosophy has been used to explore human perception of small businesses and their customers through data available from sources. The aim is to study positives of the given payment system in India and how it improves economy of the country in long-term future.

3.3 Research Strategy

The strategy for the research is to have mix-methods research strategy where both of qualitative and quantitative methods are used. The quantitative method covers the overall growth of UPI since its inception whereas the qualitative method makes us aware about the perception of small businesses towards UPI payment method. The qualitative data is collected by taking an online survey of the small businesses in India.

3.4 Collection Primary Data

3.4.1 Sources

The primary data was collected using an online survey form containing a set of questions with optional answers to make the survey easier for the participants. The participants are mainly small shop owners owning businesses such as grocery convenience stores, electronics stores, stationary shops, toy stores, and many more. The researcher aims to reach at least 120 participants to participate in the survey. As the researcher is from India, many of the business owners are connected or related to the researcher himself and that participants are also from few of the tier 1 and tier 2 cities like Mumbai, Vadodara, Ahmedabad, Gurugram, Delhi, Pune. Hence, an authentic and trusted source for conducting the survey was available to the researcher, enabling the researcher to have better findings for the research.

3.4.2 Access and Ethical Issues

The researcher's origination helped in getting the right access to primary data collection process. However, the data collected was performed ethically by contacting a variety of business owners, giving them the context, and sending required material for the survey. As many of the small business owners had technological limitations to provide their consent, the context of the survey was explained over a phone call and their consent was recorded using the google forms followed by survey questions.

3.5 Approach to Data Analysis

While most of the questions in the survey are based on how UPI payment has helped the small businesses, hence a pattern and interpretation of individual survey questions is done using the survey responses. While the aim was to acquire as many responses as possible, the target response size was limited to 30 responses from various product business types to make fair understanding.

3.6 Conclusion

As the research topic is based on overview of the payment systems for the unorganized businesses, it is difficult to conduct research on a large-scale. However, authentic web sources were used to perform quantitative research and gain an overall understanding of the scale of the said payment system. To understand the perception of payment system amongst the said business category, a questionnaire survey was required and performed.

4 Presentation and Discussion of the Findings

4.1 Overview

The primary research was conducted using online survey where the participants were essentially small business owners across various types of business from fast food shops, electronics shops, pharmacies, grocery stores, bakeries, and many more. Total 65 participants participated in the survey, where a consent for participation, their name and type of business were asked before the survey questions were listed. The survey aimed at understanding functional aspects of UPI for businesses, challenges, and how it benefitted them in their business.

4.2 Findings

The highly rated responses are considered key elements for the primary research. Few of the least rated responses are considered negligible adding no value to the findings.

4.2.1 Businesses Adapting to UPI Payments

The first important finding is about the growth in the adoption of UPI payments over the years. The participants were asked about their adoption of UPI payments where a mix of responses were seen. Out of 65 participants, 35 had started using more than two-year ago whereas 30 started using approximately 1-2 years back. However, the majority responses were more than two-years before, it also means that they were early adoption of the payment system whereas remaining of them adopted a bit later with the assumption that they considered UPI payment as a safe alternative to cash during the pandemic or more and more users preferred UPI payments over any other payment method. In the survey, other options of near time were also presented which recorded no response from any participants.

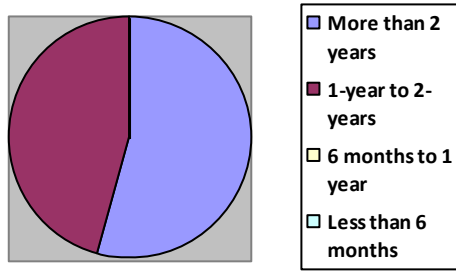


Figure 1 Business using UPI Payments since when

As also mentioned by (Das, 2023) explaining about the rise of UPI payment users reaching its peak in December 2022, Das also explains about the jump in transaction volumes by 90 percent and the value jumping by 76 percent between 2021 and 2022.

4.2.2 Reasons for Businesses Adapting UPI Payments

Out of all the reasons listed, majority of the businesses adapted to UPI payments due to convenience and security features.

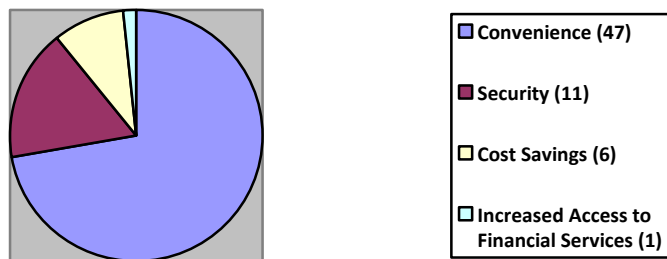


Figure 2 Reasons for Businesses Adapting UPI Payments

While most of the small businesses were accepting cash payments over any other methods, handling cash everyday with a small business setup is always challenging. With the revolution of payment technology, businesses found it convenient to accept payments digitally, directly crediting money in their bank account in real-time. The entire payment and banking ecosystem provides security to businesses and users at the same time making it easier for businesses to conduct daily business operations.

In several research articles, the ease of usage of UPI and its security features are evidently mentioned and same could be reflected in the responses from the survey (Tamuli, 2023). The blog from ACI Worldwide also explains about the new version of UPI version 2.0 which is more merchant-centric and enables merchants with several new features to help conduct business seamlessly and securely (Patnaik, 2019)

4.2.3 Usage Frequency of UPI Payment

Most the participants have expressed about the daily usage of UPI payments accounting to 59 participants whereas just 4 used weekly and 2 used monthly. The two participants using UPI monthly are extra tuition providers which attracts monthly payments whereas the participants using UPI weekly are businesses providing high value products like jewellery, white goods, and ceramics, which generally attracts other payment methods like checks, demand drafts, or electronic payments.

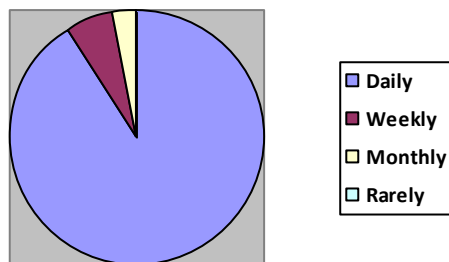


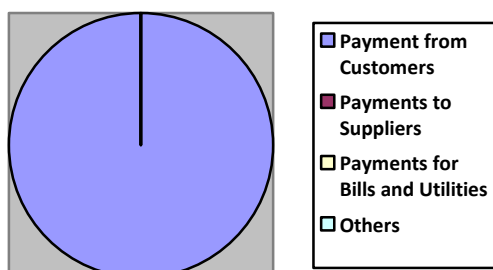
Figure 3 Usage of UPI Payments by Businesses per week

Many papers suggest the rise in usage of UPI payments; however, none consists statistics of daily usage of UPI by businesses. A further study is needed to understand the usage of UPI by businesses across various business types and geographical regions.

4.2.4 Types of UPI Transactions

A set of options were given to the participants finding for what purpose do they use the UPI payments for where everyone accepted about receiving payments

from customers. This evidently proves that small businesses use UPI payments mainly to accept payments from customers and underlies the fact that UPI is the most accepted digital payment system used throughout the country. This claim can be further reinforced by reaching more participants.



4.2.5 How UPI benefitted

This section aimed at understanding how UPI payment is helping the businesses and what value it creates for them. This section gave participants to share mix of benefits by using UPI payments such as increase in sales, increase in efficiency, cost savings, improved customer satisfaction and experience, enhancing cash flow management and reduced dependency on cash. The finding about the impact of UPI payments in their business is as follows.

- 14 participants confirm of benefitting from all the given points illustrating significant benefits they have gained from the payment system.
- 10 participants have observed improved efficiency, improvement in their cash flow, and reduced dependency in cash transactions giving them a feeling of safety from any incidents.
- 9 participants have observed a mix of improved efficiency and reduced dependency on cash transactions.
- 7 participants have gained improved cash flow management and reduction in cash dependency.
- 7 participants have been benefitting from reduction in cash transactions giving them sense of security.

In the above observations, it is seen that all participants have expressed about reduction in the cash transaction which helps them in managing their cash flow in an efficient manner. Reduction in cash transactions also helps the central bank and government can also monitor the cash flow in the economy, reducing the influence of black money, and eventually make better economical and social policies for the economy benefitting corporations, businesses, and citizens.

4.2.6 Challenges Faced

This section aimed at understanding the practical challenges experienced by the businesses. While 45 responses states of facing no challenges at all, 8 responses were directed towards security, 4 for technical issues, 3 for delayed payments and 3 for limited acceptance. In the field of technology, the security challenges are evident and worldwide no privy from any individuals or businesses. The technical issues mainly result from downtimes of UPI systems or from mobile network operators. The technical challenges faced by businesses can also be reduced by educating businesses in technological aspects. Delay in payments and limited acceptance can also be due to poor or unavailability technological infrastructure such as mobile networks or even smartphone availability or lack of knowledge to use the smartphones.

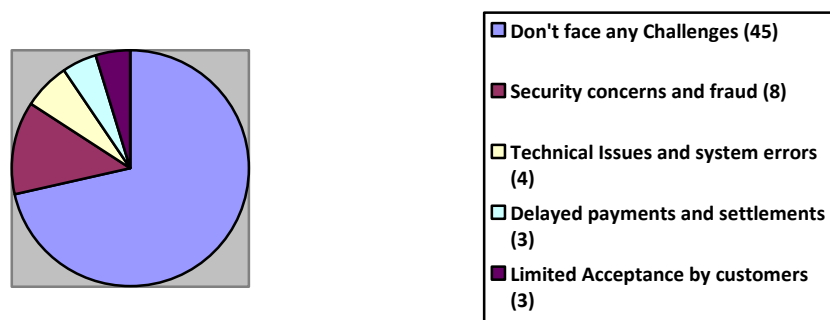


Figure 4 Challenges faced by Businesses

(Tamuli, 2023) explains about these challenges faced by several merchants related to transaction failure, slow payment processing time, and downtime, especially due to poor internet infrastructure in rural areas. She also explains about the future risks of cyber assaults which could prevent businesses from accepting payment through UPI and move back to traditional methods.

4.2.7 Qualitative Advantages of UPI

In one of the section, participants were asked of how much time do the save per week after they started accepting payments through UPI. This mainly relates to the time being saved against accepting the cash payments where the business owners had to deposit weekly cash collection to the bank. Usually in such case, long queues are lined up at the bank to deposit cash which is also applicable to these business owners. As per the survey, 28 participants have saved more than 2-4 hours per week whereas 22 participants have saved more than 4 hours per week to deposit cash in the bank. Close to 11 participants have saved approximately 1-2 hours per week whereas only 4 participants have saved less than 1 hour per week which is negligible. In the overall analysis, 65 participants have saved approximately 190 hours per week, accounting for an average of 3 hours per week per participant. This directly enhances the performance of the business by dedicating more time to the business and benefitting from cash security and convenience.

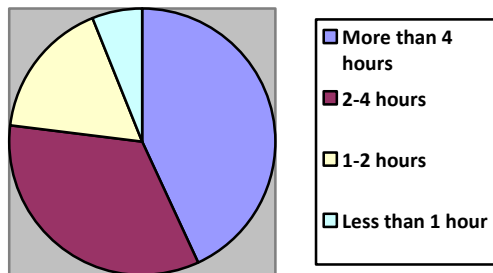


Figure 5 Time Savings Per Week

All the participants is willing to recommend UPI payments to other small businesses who has not yet adapted to the payment method resulting in further expansion of the said method. This also implies about their satisfaction level which can be reflected on other businesses enabling in further expansion.

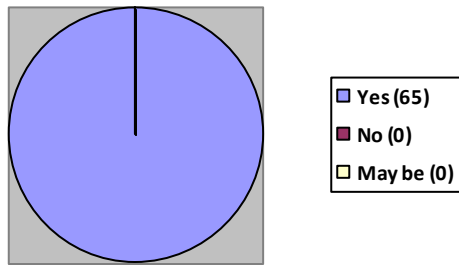


Figure 6 Recommendation to Other Businesses

The last section captures the satisfaction level of the customers of small businesses and themselves as well. While majority of the participants think that their customers are very satisfied and moderately satisfied with them providing UPI payment facility, only 2 participants were neutral with their responses. Same applies to the overall satisfaction and experience level for business owners having almost similar statistics.

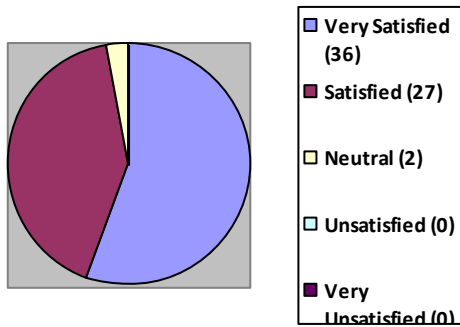


Figure 7 Customer Satisfaction Level

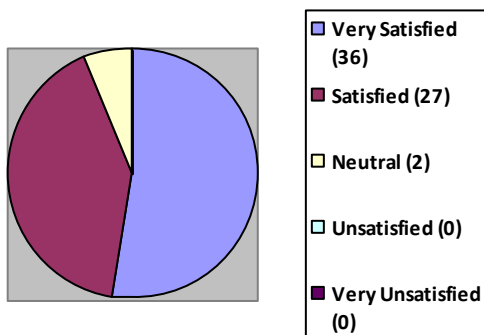


Figure 8 Business Owner Satisfaction

4.3 Discussion

Based on the findings from the primary research, positive outcome from the UPI adoption is seen. However, challenges and concerns are also unavoidable factor which can cause hesitation amongst businesses to adapt and increase the use of this payment method. (Gopalaswami, 2016) did mention after the launch of UPI, where NPCI provided the backend solution, the banks and app developers were given free hand to create front-end solutions. The major issue persists where banks have incorporated UPI in their existing banking app which is extremely cluttered and a maze to walk. This will also prevent several small businesses to use the official banking apps and rely mainly on e-wallets and other standalone apps creating a long chain of payment cycle. In contrast, Mr. Gopalaswami also mentioned about its security aspect where businesses and peers should be less worried about making transactions as they are peer-to-peer routing through the bank where banks have better technological security as compared to other digital wallets.

4.4 Conclusion

In the recent report published by PwC India, (Dixit, 2023) writes that 75% of the total UPI transactions accounted for retail segment of India in the 2022-23 financial year and is expected to grow to 90% by 2026-27. These are extremely massive numbers when compared to the pre-UPI era where only cash and card options were available. This payment system will also boost the economy of the country in near future and shall secure leadership position for a very long time. By setting an example in India, NPCI, through their brand of NPIL, can expand their backend payment technology to various other countries making global trade easier and accessible.

5 Concluding Thoughts on the Contribution of this Research, its Limitations and Suggestions for Further Research

5.1 Implications of Findings for the Research Questions

The findings do show the benefits and the paradigm shift in the payment method amongst small businesses where they mainly conducted business in cash with minimal acceptance of card payments. UPI has transformed the behavioural mindset of small businesses to shift from cash to cashless which is also the aim of the government and central bank.

5.2 Contributions and Limitations of the Research

This research mainly focuses on the small businesses which constitute the major cash economy and how UPI transformed this retail sector within 7 years of its launch. Most of the papers focused on features, benefits, challenges, technological and its statistics as a whole, whereas this paper mainly focused on small businesses of India. By performing primary research, this paper also explained about what small businesses think and feel about the said payment system, how it is benefitting them since its launch and what are the challenges faced. A very small section also spoke about its global reach and potential for expansion in numerous other countries.

While the target for survey responses were at least 120, only 65 responses were being recorded as the participants were mainly small business owners. This limits the potential participants in contrast to individual participants. As a research scope, more survey participants could be targeted to achieve better outcomes and enforce the research purpose and objectives.

The research available on the internet mainly comprises of overall research on UPI payments and not specific to small businesses and enterprises. More research is required to achieve detailed insights of the impact of UPI payments amongst small businesses in India. However, it is practically difficult to do so due to its vast expanse of usage in various urban and rural areas categorizing in many different business categories and their scale of operations.

As UPI just started to work on global scale partnering with several other countries, it is still at a foundation stage where many payments processing front-end partners are in application development stage and some are at pilot stage, the secondary data availability is scarce. More research could be done in future after successful launches, usability, behavioural patterns, and its impact could be realised. Hence, limited data about UPI's global footprint is demonstrated in this study.

5.3 Recommendations for Practice

With more time and resources, detailed research could be performed to cover its expanse of penetration and practices. More primary research is required with more questions to understand the effectiveness of the payment method.

5.4 Recommendations for Future Research

Further detailed research of the said payment method amongst small businesses is required, especially focusing on the challenges being faced by them which will help the policy makers, law makers, and technologists make informed decisions and active steps to protect the system from any vulnerability or practical business challenges in future. This research should also be done limited to specific regions across the nation to identify key problems and necessities related to the payment method and how it be improved to facilitate the method in their region. Small businesses need local solutions to succeed, and hence solving problems pertaining to regions is required for all players in this ecosystem.

5.5 Final Conclusion and Reflections

In conclusion, this research journey and process on UPI payments for small businesses has been enriching and rewarding experience. By performing extensive literature review, conceptual framework development, data collection and analysis, valuable information and insights have been achieved regarding the UPI payments for small businesses and its impact.

Reflecting on this research, it has become evident that the adoption of UPI payments by small businesses in India has great potential to drive economic growth, financial inclusion, and digital transformation. However, further extensive research is needed to gain deeper understanding and insights into the long-term impacts and potential barriers that small businesses may face in benefitting from UPI.

As a researcher, this journey has allowed for personal growth, acquiring skills in research design, data collection, analysis, and critical thinking. It has made me self-realise about its deep complexities of the small business landscape in India and the transformation power of digital payment systems in India.

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Appendices

Appendix A – Survey Questionnaires used for Primary Data Collection

1. How long have you been using UPI payments for your business?
 - Less than 6 months
 - months to 1 year
 - 1 year to 2 years
 - More than 2 years

2. What is the primary reason for using UPI payments for your business?
 - Convenience
 - Security
 - Cost savings
 - Increased access to financial services

3. How frequently do you use UPI payments for your business?
 - Daily
 - Weekly
 - Monthly
 - Rarely

4. What types of transactions do you use UPI payments for?
 - Payments from customers
 - Payments to suppliers
 - Payments for bills and utilities
 - Other: _____

5. Have you observed any changes in your business since you started using UPI payments? (Select all that apply)
 - Increased sales
 - Increased efficiency
 - Cost savings
 - Improved customer satisfaction and experience
 - More efficient cash flow management
 - Reduced dependence on cash transactions
 - Don't observe any changes

6. What are the challenges you face while using UPI payments for your business? (Select all that apply)
 - Technical issues and system errors
 - Security concerns and fraud
 - Delayed payments and settlements
 - Limited acceptance by customers
 - Lack of knowledge and awareness about UPI payments
 - Don't face any challenges

7. On average, how much time do you save per week by using UPI for your business transactions compared to traditional payment methods?
 - Less than 1 hour
 - 1-2 hours
 - 2-4 hours
 - More than 4 hours
 - No time saved

8. Would you recommend UPI payments to other small businesses?
 - Yes
 - No
 - Maybe

9. How satisfied are your customers when you started accepting UPI payments?
 - Very satisfied
 - Satisfied
 - Neutral
 - Unsatisfied
 - Very unsatisfied

10. Overall, how satisfied are you with the overall UPI payment experience for your business transactions?
 - Very satisfied
 - Satisfied
 - Neutral
 - Unsatisfied
 - Very unsatisfied