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Major Research Project on

Operational Efficiency of UPI and Its Impact on Consumer Spending Behaviour in India

Submitted By
Piyush Budhiraja
24/DMBA/164

Under the Guidance of
Dr. Chandan Sharma
Assistant Professor

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Delhi Technological University
Bawana Road Delhi 110042

CERTIFICATE

This is to certify that Mr. Piyush Budhiraja roll no. 24/DMBA/164 has submitted the major research project report Impact Operational Efficiency of UPI and Its Impact on Consumer Spending Behaviour in India in partial fulfilment of Master of Business Administration (MBA) program from Delhi School of Management, Delhi Technological University, New Delhi during the academic year 2025-26.The plagiarism content is 4% and AI content is 25%.

Dr Chandan Sharma

Assistant Professor

DECLARATION

I, Piyush Budhiraja, hereby, declare that the presented major research project report titled "Impact Operational Efficiency of UPI and Its Impact on Consumer Spending Behaviour in India" is uniquely prepared by me.

I also confirm that the report is only prepared for my academic requirement, not for any other purpose. It might not be used in the interest of any party.

.....

Piyush Budhiraja
24/DMBA/164
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Delhi Technological University (DSM)

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I, Piyush Budhiraja would like to convey my gratitude to the Head of Department (HOD), Dr. Saurabh Aggarwal of Delhi School of Management, Delhi Technological University for emphasizing the major research project and giving me the platform to conduct such research work.

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I extend my warm gratitude and regards to everyone who helped me during the study.

EXECUTIVE SUMMARY

This study is based on a few well-known frameworks such as the Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT2), and Diffusion of Innovations Theory. These models have been widely used to explain how people accept new technologies, so they provide a useful base for understanding digital payment adoption in India.

A descriptive and analytical research design has been used. For primary data, a structured questionnaire was circulated among respondents from different age groups, income levels, and professions. The idea was to capture variation in usage behaviour. Along with this, secondary data from RBI reports, NPCI data, World Bank sources, and journal articles were also referred to.

The data analysis was done using SPSS. Techniques like reliability testing, EFA, CFA, and regression were applied to test the hypotheses. The results show that perceived usefulness, ease of use, and security are the most important factors influencing whether people continue using UPI or not.

At the same time, the study also indicates a shift in spending behaviour. Users who frequently rely on digital payments tend to spend more on non-essential items, and in some cases, make quicker or impulsive purchase decisions. However, this is not the same for everyone. Trust in digital platforms and financial literacy levels make a noticeable difference, especially among first-time users and people from semi-urban areas.

Overall, UPI has clearly improved the speed and convenience of payments. But beyond that, it is also changing how people spend money. This has important implications. There is a need to strengthen digital infrastructure, improve awareness about cybersecurity, and promote financial literacy so that increased fintech usage leads to better financial outcomes in the long run.

CONTENT

CHAPTER 1: INTRODUCTION

Traditionally, India has been considered a cash-based economy, where cash was the most common method of making payments in the course of everyday business dealings. Cash was usually utilized for buying food, paying rent, and sending money to family and friends. Cash is used due to simplicity and the feeling of security while making payments. But, due to rising awareness of digitalization, the payment system in India has dramatically changed in the last decade (RBI, 2024).The accessibility of smartphones, low-cost Internet facilities, has made consumers choose cashless transactions. Schemes like Digital India and Pradhan Mantri Jan Dhan Yojana have improved financial inclusion by bringing millions of individuals into the fold of formal banking. This has increased the use of digital payments among students, salaried class, businessmen, and even traders in semi-urban and rural areas (World Bank, 2022).The Unified Payments Interface (UPI) is one of the most important innovations that have emerged from this revolution, introduced in 2016 by the National Payments Corporation of India (NPCI). It is a digital real-time payment system through which money can be transferred directly between different bank accounts via mobile applications. This payment interface differs from other payment systems due to its interbank capability, providing consumers the ability to pay at any time and from any place using mobile numbers, QR codes, or Virtual Payment Addresses (VPAs)..

The popularity of UPI has increased rapidly in recent years. Today, consumers use UPI for a wide range of transactions, including retail purchases, utility bill payments, online shopping, transportation, educational fees, and peer-to-peer fund transfers. Small businesses and street vendors have also widely adopted QR-code-based payments because they are easy to implement and reduce dependence on cash. According to NPCI (2024), UPI processes billions of transactions every month, making it one of the largest real-time payment systems in the world.While previous research has widely explored the subject matter of adoption of digital payments, acceptance of the technology, and financial inclusion, relatively lesser attention has been paid to investigating the impact of the operational efficiency of UPI on consumer expenditure behavior post-adoption. Previous literature mostly concentrated on the reasons for

which the consumers adopted the technology of digital payments but there is little known about the impact of efficient digital payments on expenditure behavior, trust, and satisfaction of users (Davis, 1989; Venkatesh et al., 2012; Oliveira et al., 2016).It can be seen from the review of existing literature that there have been very few empirical studies that have considered all the four factors, operational efficiency, consumer spending behavior, trust, and satisfaction together in relation to the use of UPI. It is this research gap which motivates the current study. Thus, this study focuses on the operational efficiency of the Unified Payments Interface (UPI) and the effect of the same on the consumer spending behavior in India, taking into consideration the issue of trust and satisfaction.

1.1 Background

There have been major modifications in the Indian payment systems over the last decade. Before the inception of the Unified Payments Interface (UPI), cash transactions were mostly preferred while transacting in day-to-day activities and digital modes of payments such as NEFT, RTGS, debit cards, and mobile wallets were used mainly for specific purposes. The use of these systems was subject to processing lags, high costs, lack of interoperability, or low acceptance rate by small businesses. This means that the usage of digital payments was minimal, especially among the informal sector and in rural areas (Reserve Bank of India [RBI], 2024).One of the biggest developments was the introduction of the UPI system developed by the NPCI in 2016. As a result of various government programs such as Pradhan Mantri Jan Dhan Yojana, Digital India, Aadhaar, affordable internet, and quick adoption of smartphones, the UPI system made instant bank-to-bank money transfer through an easy and interoperable platform possible. The convenience of usage, low-cost transactions, and availability all through the day motivated people to choose online payments for routine transactions. In addition, the coronavirus disease 2019 outbreak pushed towards using QR-code-based payments through the country's retail shops, services, and small firms. Now the system handles billions of transactions per month, making it one of the world's biggest real-time payments systems (NPCI, 2024).Besides increasing the convenience of payments, UPI has also affected the attitude of customers towards finances.

The use of digital payments decreases the complexity of conducting transactions and offers immediate confirmations and digital transactions for consumers. According to research from the field of behavioural finance, although such ease of use can stimulate spending behaviour, it is also possible that it increases financial literacy (Prelec & Loewenstein, 1998; Soman, 2001; Oliveira et al., 2016). However, the acceptance of UPI also depends not only on its convenience but also on trust in its security and reliability.

While the quick growth of UPI proves its wide acceptance, transaction volume cannot be used to determine how operational efficiency of the system impacts consumers' purchasing behavior. Past research has primarily concentrated on factors that relate to adoption of digital payments, technology acceptance, and financial inclusion, while insufficient attention has been paid to researching how operational efficiency impacts purchasing behavior, trust, and customer satisfaction after the adoption of UPI. It gives the necessary context for further research, while the research gap formed by past literature will be considered in Chapter 2.

1.2 Problem Statement

2 The Unified Payments Interface (UPI) is regarded as one of the most remarkable inventions in the digital payment domain in India, which has revolutionized the process of conducting financial transactions for people and firms. The success and development of UPI can be witnessed through increased numbers of transactions and usage in various industries. However, current literature and research works have mostly considered metrics like the number of transactions per month, amount of transaction, and growth in users as the measures for adoption, whereas very little work has been done in order to explore the influence of operational efficiency of UPI on the consumers' spending behavior, trust, and satisfaction.

52 The efficiency of UPI as a tool, measured in terms of transaction time, ease of use, availability, reliability, and security, may have an impact on users' financial behavior in various ways. While the convenience of instant money transactions may result in more expenditure and higher frequency of transactions, digital

transactions may assist in making better plans and budgets. Likewise, the level of user trust and satisfaction will be affected not only by the convenience of the system but also by the security and reliability of its performance. Given that the target audience for UPI consists of people of various ages, incomes, education, and geographic locations, this should be taken into account when considering its efficacy (Prelec & Loewenstein, 1998; Soman, 2001; Oliveira et al., 2016).

The growing dependence on UPI for everyday financial transactions highlights the need for the present study.It will help us get some insights into the impact that the efficiency of operations of UPI has on the spending behavior, trust, and satisfaction of consumers. In this regard, the current research aims to conduct an analysis of the mentioned relationships. It will allow us to contribute to the development of the digital payment system of India.

1.3 Objectives of the Study

Primary Objective: To analyze the operational efficiency of the Unified Payments Interface (UPI) and study the effect of UPI on consumer spending behavior, trust, and satisfaction of consumers in India..

Secondary Objective 1: To analyze the operational efficiency of the Unified Payments Interface in terms of speed of transactions, reliability, convenience, accessibility, and security from the user perspective..

Secondary Objective 2: To analyze the effect of operational efficiency of UPI on consumer spending behavior.

Secondary Objective 3: To analyze the effect of operational efficiency of UPI on users' trust and satisfaction.

Secondary Objective 4: To determine the key issues faced by users in the use of UPI and their dependence on digital payments.

1.4 Scope of Study

This study explores the effectiveness of operations of the United Payments Interface (UPI) and its influence on consumer expenditure behavior amongst

consumers using UPI for transactions in India. The study highlights the important aspects of operational efficiency in terms of transaction time, reliability, convenience, accessibility, and security, and their influence on consumer expenditure behavior, trust, and satisfaction. This study also identifies some of the important issues faced by consumers using the UPI facility for digital transactions.

The scope of this study involves only the behavioral aspect of using UPI and the perception of users regarding the efficiency of UPI operations. This study will not involve any comparison between UPI and other digital modes of payment; moreover, this study will not analyze the architecture of UPI, its security systems, or the regulations surrounding it.

CHAPTER 2: LITERATURE REVIEW

A literature review helps establish the basis of a research study through analyzing the existing knowledge, determining proven results and areas that need more research. Researchers can learn about the development of a particular field, evaluate various approaches and determine where there is a gap in existing literature that needs to be explored in future studies **(Creswell & Creswell, 2018; Snyder, 2019).** In case of the studies concerning digital finance industry, it is especially crucial due to technological progress and changes in customer behavior observed during the past decade.

The development of financial technology (FinTech) has led to drastic changes in the financial environment of the world, making financial services faster, more convenient, and more customer-oriented. One of the key innovations related to FinTech is the emergence of digital payments that have revolutionized the sphere of financial transactions for both individuals and enterprises **(Arner et al., 2016; Lee & Shin, 2018).** In India, such changes have been sped up due to governmental policy aimed at digital financial inclusion, higher penetration of smartphones, cheaper internet services, and the development of the Unified Payments Interface (UPI). Since its launch in 2016, UPI has become one of the fastest growing payment systems in the world and greatly impacted consumers' payment preferences **(RBI, 2024; NPCI, 2024).**

Given the increasing dependence on UPI for financial transactions, it becomes necessary not only to know about its effectiveness but also about its impact on consumer spending behavior, trust, and satisfaction. Hence, this chapter is focused on the literature review on FinTech, digital payment system, UPI, consumer spending behavior, and the relevant empirical studies to provide the theoretical framework for the current research.

2.1 Fintech and Its Growing Role in Everyday Finance

Financial Technology is commonly known as FinTech and it refers to the combination of technology with financial services for increased efficiency and

better customer experience. As defined by **Arner et al. (2016)**, FinTech refers to technological advances which make delivery of financial products and services efficient and easier. According to **Gomber et al. (2018),** FinTech is a financial system supported by technology which makes financial intermediation efficient and lowers transaction costs. FinTech has revolutionized traditional banking with various technologies including digital payments, peer-to-peer lending, digital investments, insurance technology, and mobile banking solutions.

FinTech's development is especially pronounced in emerging economies like India, where government measures and technological advancement have led to greater financial inclusion. The rollout of schemes like the Pradhan Mantri Jan Dhan Yojana (PMJDY), digital identification through Aadhaar, greater use of smartphones, and cheap Internet access have all resulted in a favorable climate for digital financial services **(World Bank, 2022; RBI, 2024).** This has made it possible for millions of people who were earlier financially excluded to be included in the formal economy.

Different theories have been used in explaining the adoption of digital payment systems. For instance, the Technology Acceptance Model (TAM), advanced by **Davis (1989)**, posits that perceived usefulness and ease of use of technology greatly influence people's intention to adopt technology. In this case, UTAUT extended the TAM theory to identify more variables, which are social influences and facilitating conditions influencing the adoption of technology. More so, UTAUT2 introduced more variables including habit, hedonic motivation, and price value influencing the adoption of technology **(Venkatesh et al., 2012)**. These theories have been extensively used in analyzing the adoption of digital payment systems and UPI.

Past studies have also highlighted the importance of trust in consumers for adopting digital financial solutions. While perceptions of usefulness and ease of use promote technology adoption, issues such as security, privacy, and financial risk could deter consumers from using digital payment systems **(Gefen et al., 2003; Oliveira et al., 2016).** It is important for any digital payment solution to be not just efficient but also reliable and secure.

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2.2 Digital Payment Systems

Digital payment systems are the face of fintech that we see and use every day. They include things like debit and credit card payments, internet banking, mobile wallets and bank-to-bank transfers. Over the ten years these systems have changed a lot in India. They used to be slow and complicated. Now they are fast and simple. We can use them on our phones and they are available to everyone **(Reserve Bank of India, 2024; Dahlberg et al., 2015).**

So why do people start using payment systems and why do some people not want to use them? This is what people who study consumer behavior and information systems have been trying to figure out. They found out that people will use a technology if they think it will be useful and if it is easy to use. Both of these things have to be true. If a system is so useful but hard to use people will not use it. If a system is easy to use but does not do anything useful people will also not use it **(Davis, 1989).**

When it comes to payments it is easy to show that they are useful. We can do transactions faster we do not have to carry cash we can use them at any time. We can send money to anyone in any city. In the past it was not always easy to use digital payment systems. We had to do steps we had to know about technology we had to have special hardware or we had to sign up for something. This was not easy for regular people to do **(Dahlberg et al., 2015).**

The research shows that when digital payment systems are useful and easy to use people will start using them and they will use them more and more**(Davis, 1989; Venkatesh et al., 2003).** When a lot of people start using a payment system it becomes even more useful for each person. This is because more and more people they interact with are also using the system. This is what happened with payment systems like UPI. When enough merchants and individuals started using it became harder for people who were not using it to not use it. So, more and more people started using it. It spread rapidly. Digital payment systems, like UPI are an example of how useful and easy to use systems can change the way we do things**(Venkatesh et al., 2012).**

People did more research on why people adopt new things and they found out that trust is really important especially when it comes to money. People can see that a payment system is useful and easy to use. They will still not use it if they do not think it is safe. When we talk about technology people need to feel safe when they use it. It is not something that is nice to have it is something that people need to have in order to use it. Many studies have shown that people are afraid to use payments because they think it is not safe and this is especially true for people who are using it for the first time or for older people**(Slade et al., 2015; Oliveira et al., 2016).**

People are also more likely to use payments if their friends and family are using it. In India people talk to each other a lot. They trust what their friends and family say. So, if people see that their friends and family are using a payment system and it is working well for them, they will be more likely to try it. This is called proof and it has been very important in getting more people to use UPI payments not just the people who like to try new technology first but also regular people. Digital payment systems, like UPI are becoming more popular because people are seeing that they are safe and easy to use and their friends and family are using them too **(NPCI, 2024; RBI, 2024).**

2.3 UPI: A Platform That Changed the Rules

UPI deserves to have its focused discussion in the literature review because UPI is really different from other digital payment systems. UPI is a way of designing payment infrastructure and it has gotten a lot of attention from academics and policymakers and businesses since it was first launched **(Arner et al., 2016; Lee & Shin, 2018; RBI, 2024).**

What makes UPI so interesting to academics beyond the fact that it has been very successful is the way it solved problems that were stopping people from using payments. UPI made it possible for people to make transactions from anywhere and for no charge, which took care of the problems of cost and speed. It created a system that works with lots of apps and all banks, which solved the problems of being stuck with one system and not being able to access it**(RBI, 2024; Oliveira et al., 2016).**

Studies that looked at UPI specifically noticed that it created a cycle between people adopting it and how they used it. The first people to use UPI found it useful for a specific thing like sending money to friends and paying bills. As they got more used to it and felt more confident, they started using UPI in situations like buying things from local shops shopping online, traveling and subscriptions. Each new way they used UPI made them more likely to use it and reduced the feeling that it was a new technology they were trying out **(Rogers, 2003; Venkatesh et al., 2012).**

This change from people just trying out UPI to making it a part of their routine is important. It changes how users interact with the platform. When people first start using UPI they think carefully about it.. When UPI becomes a habit it is the first thing they think of. They do not just consider it as one of options.

Research on how people form habits when using technology says that this shift from thinking to doing something is a big predictor of whether people will stay loyal to a platform. They will also be satisfied with it. Research has also looked at how UPI affects merchants. Small and medium businesses that started using QR code payments got benefits. These benefits include reduced risk from handling cash. They also got transactions, automatic record keeping and access to customers. This includes customers who do not carry cash. These benefits for businesses reinforced the cycle of users making UPI a habit. When users saw that they could use UPI everywhere they used it often **(Limayem et al., 2007).**

The literature on UPI talks about how it has helped digital payments reach people and places. Before UPI digital payments were mostly used by people who lived in cities. They had jobs. Upi is simple. It can be used by people with or, without education. QR code payments are especially easy. They just require scanning and confirming an amount. No need to read or navigate menus.This simplicity has helped bring payments to communities and types of transactions where they were not used before **(World Bank, 2022; RBI, 2024).**

2.4 Consumer Trust, Spending Behavior, and the Psychology of Digital Payments

People have found out two things about payments. These are consumer trust and how people spend their money. We want to look at consumer trust and how people spend their money. Lots of people have already studied consumer trust. How people spend their money.

Consumer Trust in Digital Financial Systems

16 Trust is an important element in determining the adoption and usage of electronic payment technology. It is defined as the level of confidence that customers have regarding a payment system as being dependable, secure, and able to safeguard their private information **(McKnight et al., 2002; Gefen et al., 2003)**. Trust minimizes risks associated with usage of electronic payment services.

Trust is earned by repeated positive interactions involving safe and secure transactions while failure of transactions or insecurity can erode users' trust **(Gefen et al., 2003; Oliveira et al., 2016)**. Security and perceived security are distinguished by researchers as there are many occasions where it is found that consumers' perception of security has greater impact on the adoption of digital payment platforms than security offered by such platforms **(Slade et al., 2015).** Also, recommendations by family members, friends and peers play an important role in building trust for using such payment platforms **(Venkatesh et al., 2003; Rogers, 2003).**

Consumer Spending Behavior and the Cashless Effect

41 Earlier studies have shown that the mode of payment affects consumer spending behavior. The Pain of Paying Theory claims that using electronic modes of payments reduces the feeling of psychological pain from purchasing in comparison with using cash, hence increasing consumer willingness to purchase frequently **(Prelec & Loewenstein, 1998; Soman, 2001).** Thus, electronic payment customers usually make more transactions than cash customers.

UPI makes this process more effective by incorporating aspects like immediate transfer of funds, QR code payments, instant transaction verification, and bank account connectivity, thus making the transaction process convenient and efficient (NPCI, 2024; Reserve Bank of India, 2024). However, the convenience of digital transactions need not lead to overspending. The ability to check transaction history through the UPI portal may make the process of expenditure management easier for the user, whereas financial literacy is still an important determinant of saving behavior **(World Bank, 2022; Soman, 2001).**

The Research Gap

The research we have looked at far gives us a good idea of what is going on but it also shows us that there is something missing. Most of the research that has been done looks at either how people use technology or how their behavior changes when they use it. For example, some studies look at why people start using payments or what happens to their spending habits when they stop using cash. Other studies look at how people trust financial systems. Not many studies look at all of these things together especially when it comes to UPI **(Davis, 1989; Venkatesh et al., 2012; Oliveira et al., 2016).**

There is also not research on what happens after people start using UPI. We already know that a lot of people are using UPI. The question of whether or not people will use it is not as important as it used to be. What we really want to know is what happens after people start using it. How does using UPI all the time change the way people manage their money, does using UPI regularly make people trust it more or is it the way around, what kinds of problems do people who have been using UPI for a time have that new users do not, These are the kinds of questions that this study is trying to answer (Limayem et al., 2007; RBI, 2024).

This study is trying to fill in the gaps in our knowledge by looking at how UPI works how it affects peoples spending habits and how it affects their trust in the system. We are also looking at whether different kinds of people such as younger people, men or women rich or poor people have different experiences

with UPI. By looking at all of these factors, we can get a more complete picture of how UPI is working and how it can be improved.

When we look at the research that has been done, we can see that there is a gap in our understanding of the problems that people who use UPI all the time have. Most of the research on payments looks at the problems that people have when they are first starting to use them. We do not know as much about the problems that people have once, they are already using UPI. For example, some people may be worried about fraud , have problems with their internet connection , have trouble when transactions do not go through. By looking at these kinds of problems, we can get the understanding of what people need and how we can help them (Oliveira et al., 2016; RBI, 2024).

Another thing that the research shows us is that people who use UPI all the time are still worried about security. We might think that people would be less worried about security once they get used to using UPI. That is not what we found. Even people who use UPI all the time are still worried about security and fraud. This is important for us to know so that we can design systems to keep people safe and communicate with them in a way that makes them feel more secure (Oliveira et al., 2016; RBI, 2024).

Finally, the research does not tell us much, about how people feel when they rely heavily on UPI As United Payments Interface becomes a part of our lives we need to think about what happens when United Payments Interface does not work properly. We asked people how they feel about relying on United Payments Interface and what they think about the risks of United Payments Interface. This is something that we do not know much about United Payments Interface. It is a part of understanding how United Payments Interface is affecting people’s lives.

CHAPTER 3: RESEARCH METHODOLOGY

The way we do research is really important for any study because it shows how we planned it how we got the information and how we came to our conclusions about the study. A good way of doing research makes the study make sense it is logical. We can trust the study. This gives the person confidence that the results of the study are not just guessed. Are based on a careful and structured process of asking questions and finding answers about the study.

In this study about UPI we wanted to look at how UPI works and how UPI affects what people buy how much they trust UPI and if they are happy with UPI. Since we are looking at what people think and how they behave when they use UPI we thought the best way to do this was to use numbers and statistics about UPI. This part of the study explains how we designed our research about UPI, who we asked about UPI, how we chose the people we asked about UPI, where we got our information about UPI, how we made our questionnaire about UPI, how we collected the information about UPI what we were trying to measure about UPI and what tools we used to analyze the information about UPI.

The point of this part of the study about UPI is not just to talk about the details but to explain why we chose to do it this way for the study about UPI. When we are talking about technology and digital payments like UPI it really matters that we get the right information from the right people and that we make sense of the information, about UPI.

3.1 Research Design

The objective of the research is to conduct an analysis of users' experiences on the basis of their perception regarding the effectiveness of UPI, their level of trust and satisfaction with the technology, and how the use of UPI has affected users' spending behavior..

At the time the study is looking at the numbers to see how things are related to each other. It does not just say that people like UPI or they do not like UPI. The study checks if UPI is really working well and if that makes UPI users trust

UPI and change their spending habits. The study also checks if things like age and income affect how people use UPI.

This study is about numbers and statistics. We chose this kind of research because we wanted to measure what people think about UPI and use numbers to understand UPI. We can use numbers to compare things see if there are any differences and find patterns in how UPI users answer our questions about UPI.

The study is looking at UPI users at one point in time. It gives us a picture of what UPI users think and feel about UPI now. This way of doing research is good for understanding what people think about UPI at this moment especially when it comes to things like payments that are changing fast. The study is helpful, for understanding UPI users. How UPI users use UPI.

3.2 Nature of the Study

This study is about the people who use UPI. It does not look at the coding or the financial system behind UPI. What it does look at is how people use UPI in their lives. This means looking at things like how fast UPI's how easy UPI is to use. It also looks at if people feel safe when they use UPI.

The study wants to know if using UPI payments changes the way people deal with their money. For example do people spend more money because UPI is easy to use?

The study also looks at something. It knows that financial technology like UPI does not just affect how people make transactions. It also affects the habits of people. When people start using a payment tool, like UPI, the way they handle their money may change. So the research looks at two things: how UPI works and how people behave when they use UPI.

3.3 Universe and Target Population

The study is about people in India who use payment applications like UPI. The main focus is on people who regularly use UPI to do things like transfer money, shop, pay bills, pay merchants and buy things online every day. People who use UPI are the ones we want to talk to.

We chose people who use UPI regularly because we want to know about their experience with UPI. We do not just want to know if they have heard of UPI we want to know how they actually use UPI. To get the answers we need we need to talk to people who have used UPI, not people who know what UPI is.

The people we are studying are from all walks of life they are students, people with jobs, people who work for themselves and others. We want a mix of people because UPI is used by everyone now. UPI is for anyone who wants to use it it is not just, for one type of person or one age group. We want to know about the experience of people who use UPI.

3.4 Sampling Technique

The study used a way to choose people to participate called convenience sampling. This method involves picking people who're easy to reach and willing to take part. The questionnaire was sent online. People who regularly use UPI and were happy to answer were included in the study.

Convenience sampling is a method that is used in research when time and resources are limited. It does not give the level of random results as other methods but it is very useful for understanding how people think and feel about things. In this study the goal was to understand how UPI users behave and what they experience in a way so convenience sampling was a good choice, for the UPI study. The UPI study wanted to know what UPI users think and feel and convenience sampling helped to do that.

The good thing about this method is that it is fast and flexible. It allowed the researcher to get answers from UPI users, from different groups of people without needing a lot of resources to collect the data. UPI users were the focus of the study and convenience sampling made it possible to learn from them quickly and easily.

3.5 Sample Size

The final number of responses we used for the study was 103. We picked these responses after we made sure they were complete and relevant. We did

not use responses that were not complete or were not suitable for the study. This helped us get results from our analysis.

We thought 103 responses was a number for our research because we could use the statistical methods we wanted. These methods included checking how reliable the responses were, doing a one-sample t-test looking at how thingsre related using chi-square and doing multiple regression. We were not trying to learn something that would apply to the country. Instead we wanted to understand what people think and how they behave.

The people who gave responses to our study were different, in ways. They were ages, men and women , had different levels of education , made different amounts of money , had different jobs and lived in different types of places. This meant we could look at how these differences affected the results when we needed to.

3.6 Sources of Data

20 The study used two kinds of data is, primary data and secondary data.

Primary Data

The study got information from people who use UPI by asking them a bunch of questions. This information was really important for the study because it showed what people who use UPI actually think and feel about UPI.

Secondary Data

The study also got information from books and articles and reports that have been written about fintech and UPI and how people buy things using payments and how much they trust technology. The study used this information to see what other people have said about UPI and digital payments and to get some ideas.

3 The study used both primary data and secondary data to make sure the research on UPI and digital payments was fair and had good support. This

made the study, on UPI and digital payments more complete. It gave a better understanding of UPI.

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3.7 Data Collection Method

The data was collected through a questionnaire using Google Forms. This method was chosen because it is easy not expensive and suitable for a study about payment users. Since UPI users are already used to using their smartphones an online survey was a way to reach them.

Collecting data online had benefits. It made it quicker to collect responses reduced mistakes from entering data and made it easy to transfer data into spreadsheets and SPSS for analysis. It also helped people, from locations participate, making data collection more flexible.

The online method allowed respondents to answer at their convenience. The data collection process was also more efficient. It helped to gather data from an audience. The UPI users were able to respond. The Google Forms made it simple to collect data.

3.8 Measurement of Constructs

Each thing we looked at was measured in a few ways to make sure we got it right.

Operational Efficiency

We wanted to know what people thought about how UPI actually worked so we

looked at how fast it was, how reliable it was, how easy it was to use and how easy it was to get to.

Consumer Spending Behavior

We looked at whether using UPI had changed the way people paid for things how

often they spent money, how confident they felt when making digital payments and how they handled their money.

Consumer Trust and Satisfaction

We measured how much people trusted UPI if they were happy with how it worked if they thought it would keep working and if they liked using UPI to pay for things.
Using a few questions, for each of these things helped us make sure our measurements were consistent and that we really understood what was going on with UPI.

3.9 Statistical Tools Used

The study used statistical tools to analyze the data.

1. Percentage and Frequency Analysis

This tool helped describe the data and categorical responses such as the biggest challenge people faced how likely they were to recommend something and changes in savings.

2. Cronbachs Alpha

This test checked if the multiple items in a scale were reliable and measured the thing. It helped confirm if the items in each scale were measuring the general concept.

3. One-Sample t-Test

This test checked if the average score of each construct was different from a value

. It helped determine if people generally had views.

4. Correlation Analysis

This analysis looked at the relationship between efficiency, spending behavior and trust. Both Spearman and Pearson correlation approaches were used to see how strong and, in what direction these relationships were.

5. Chi-Square Test

This test checked if certain demographic variables were associated with outcomes related to UPI use.

6. Multiple Linear Regression

This tool examined if operational efficiency and consumer spending behavior could predict consumer trust and satisfaction.

These statistical tools ensured that the analysis was connected to the study objectives and not just descriptive.

3.10 Hypotheses of the Study

The research was guided by a set of hypotheses which are designed around the major variables. These included:

- UPI significantly improves perceived operational efficiency.
- UPI significantly influences consumer spending behavior.
- UPI significantly improves consumer trust and satisfaction.
- Demographic variables do not significantly influence selected UPI-related outcomes.
- Operational efficiency and spending behavior significantly predicts consumer trust and satisfaction.

CHAPTER 4: DATA ANALYSIS, FINDINGS AND DISCUSSION

4.1 Introduction

This chapter is really the important part of the whole research effort. We have done a lot of work far like the literature review, the conceptual framework, the questionnaire design and the methodology and it has all led to this chapter. The main goal of this chapter is to show the data that we got from the 103 people who answered our questions and use the statistical methods from Chapter 3 to understand it. This chapter is not about giving you numbers that is not the most important thing. The data from the 103 respondents is what matters and this chapter tells you what it really means in life and how it connects to the goals and ideas of the research effort. The research effort is what this chapter is about and the data, from the 103 respondents is what makes it important.

The chapter is put together in a way that makes sense. It starts with the demographic profile of the people who answered the survey, then goes into reliability analysis, and finally uses the right statistical tests to answer each research question in order. There is a proper table for each test, and then a clear and simple explanation. At the end of the chapter, there is a comprehensive discussion of the results, useful suggestions, and a frank look at the limitations.

This chapter talks about the six steps of analysis that are:

1. Analysis of the Demographic Profile and Frequency.
2. Using Cronbach's Alpha for Reliability Analysis.
3. One-Sample t-Test for Hypotheses H1, H2, and H3.
4. Correlation Analysis to look at how entities are related to each other.
5. Chi-Square Tests for Hypotheses H4a to H4e.
6. Multiple Linear Regression for Hypothesis H5.

Every phase directly relates to one or more research goals, which keeps the whole analysis focused and useful.

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4.2 Demographic Profile of Respondents

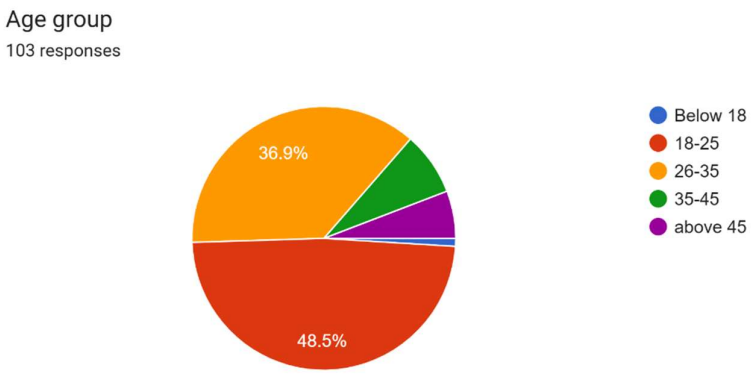
4.2.1 Objective Background

Before looking at the results we need to know who took part in the study. The demographic information does not directly test any hypothesis. It helps a lot. It shows if the group of people we studied is varied enough to give us information. This information also helps us understand the situation in which we got the results.

Research Objective Addressed: General background understanding and preparation for Objective 4 (demographic associations).

4.2.2 Age Distribution

Figure 1: Age Group Pie Chart

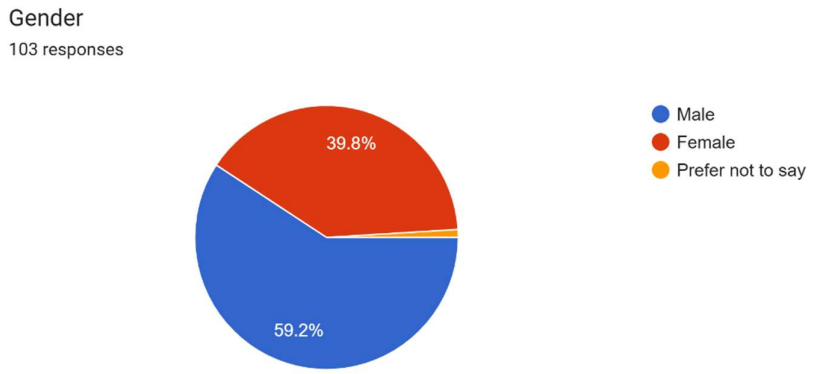


Own Source

The majority of respondents 61.2% fell in the 18–25 age group. This is expected and appropriate because young adults are the most active users of UPI-based applications. Together with the 26–35 age group (25.2%), over 86% of the sample represented the digitally active working and student population. Older users above 45 years were limited to 2.9%, which is a demographic limitation acknowledged in this chapter.

4.2.3 Gender Distribution

Figure 2: Distribution of Respondents by Gender

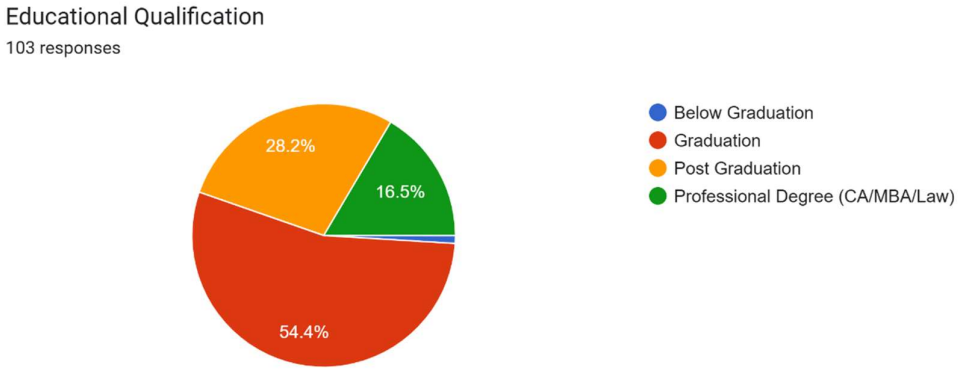


Own Source

The gender distribution is almost equal i.e. males are 52.4% and females are 44.7%. This near to equal distribution is so useful because it prevent gender-related bias in the overall findings and makes gender-based comparisons meaningful.

4.2.4 Educational Qualification

Figure 3: Distribution of Respondents by Educational Qualification



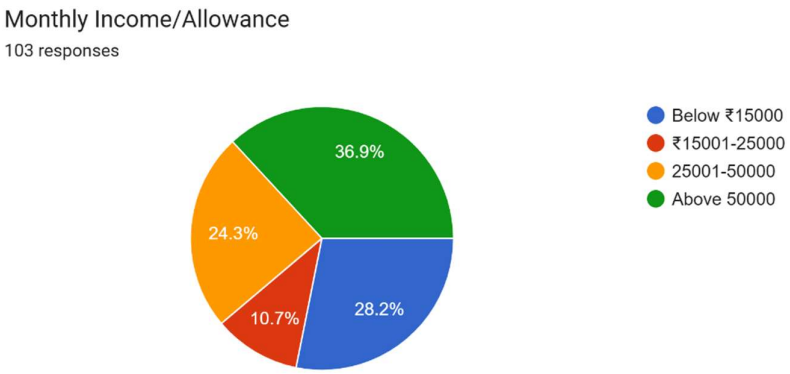
Own Source

Almost 99% of respondents were graduates or above, with postgraduates is being the largest single group at 44.7%. This reflects the sample's academic

orientation which is natural for a study distributed through college networks and professional contacts. These respondents are enough capable of evaluating digital service quality and forming clear opinions.

4.2.5 Monthly Income or Allowance

Figure 4: Distribution of Respondents by Income/Allowance

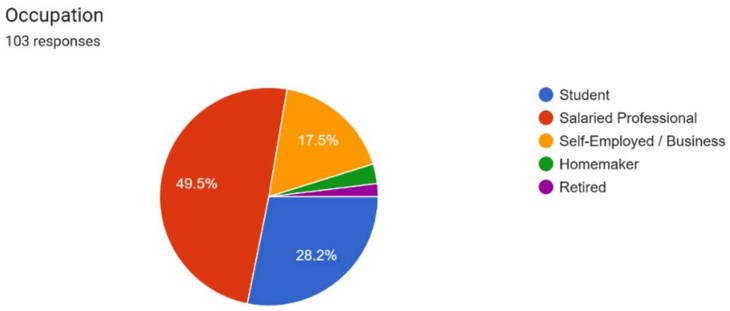


Own Source

The money people make is divided into four groups. Students and young people mostly have incomes. On the hand people with jobs are usually, in the middle- and higher-income groups. This is helpful to see if the amount of money people makes affects UPI results.

4.2.6 Occupation

Figure 5: Distribution of Respondents by Occupation



Own Source

Most people who use UPI every day are salaried professionals and students. Salaried professionals make up 49.5 percent of the people we looked at. Students make up 33 percent. Together salaried professionals and students are 82.5 percent of the people we looked at. Salaried professionals and students are the people who use UPI every day and what they think about money and trust is really important to our study, about UPI users.

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4.3 Reliability Analysis - Cronbach's Alpha

4.3.1 Objective Background

Research Objective Addressed**:** This analysis is to checks if the measurement instrument is good and makes sure that the composite mean scores used in all tests are trustworthy. This analysis must be done before we do any hypothesis testing on the Research Objective.

Before we start testing any hypotheses , we need to make sure that the questionnaire scales are good. What this means is that when different people answer the questions honestly the questions in each section should give us the same basic idea. If the scales are not good then the whole analysis is questionable no matter how many people are in the study.

Cronbachs Alpha is the tool we use to measure how well the questions work together. Cronbachs Alpha scores range from 0 to 1. For research we need a Cronbachs Alpha score of at least 0.70. If the score is between 0.70 and 0.79 it is okay. If the score is between 0.80 and 0.89 it is good. If the score is 0.90 or higher it is excellent, for the Research Objective.

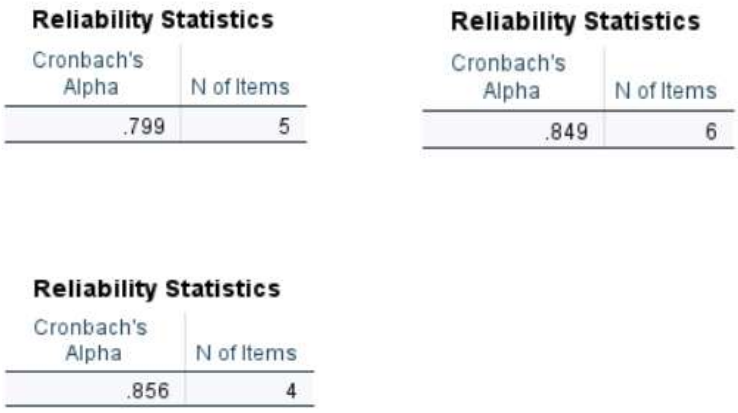
4.3.2 Results

Table 1: Cronbach's Alpha - Internal Consistency of Major Constructs

Construct	Number of Items	Cronbach's Alpha (α)	Interpretation
C: Operational Efficiency (C1–C5)	5	0.799	Acceptable Close to Good
D: Consumer Spending Behaviour (D1–D6)	6	0.849	Good
E: Consumer Trust and Satisfaction (E1–E4)	4	0.856	Good

Own Source

Figure 6: SPSS Results of Cronbach's Alpha for C_Mean, D_Mean, E_Mean



Reliability Statistics

Cronbach's Alpha	N of Items
.799	5

Reliability Statistics

Cronbach's Alpha	N of Items
.849	6

Reliability Statistics

Cronbach's Alpha	N of Items
.856	4

Own Source

4.3.3 Interpretation

The three parts of the study easily passed the test with a score of 0.70 or higher which means the whole measurement tool is reliable.

Operational Efficiency, with a score of 0.799 was very close to being considered "good". This shows that the five items related to efficiency are strongly connected. In terms people who think UPI is fast also think it is reliable

and easy to use. The questions were not answered randomly. In a way that contradicts each other.

Consumer Spending Behaviour, with a score of 0.849 is clearly "good". The six items looked at aspects of how people change their payment behaviour, such as how often they pay how confident they are and how widely they use it. Even though these items are different people answered them in a way. This confirms that D_MEAN is a way to measure these things.

Consumer Trust and Satisfaction with a score of 0.856 is also "good" when it comes to reliability. The four items related to trust including confidence, satisfaction and reliability are all consistent, with each other. This means that E_MEAN is a way to measure trust.

These three scores show that the research tool is valid and that the rest of the study is based on information. The Operational Efficiency, Consumer Spending Behaviour and Consumer Trust and Satisfaction all confirm that the measurement instrument is dependable.

4.4 One-Sample t-Test - Hypotheses H1, H2, and H3

4.4.1 Objective Background

Research Objective Addressed:

- Objective 1: To evaluate the operational efficiency of UPI (→ H1)
- Objective 2: To study the influence of UPI on consumer spending behaviour (→ H2)
- Objective 3: To examine consumer trust and satisfaction (→ H3)

The One-Sample t-Test is used to compare the score of each construct against the neutral midpoint value of 3.0 on the five-point Likert scale. This test is really simple. It checks if the average response is significantly higher than neutral. The One-Sample t-Test asks a question: is the average response significantly higher than neutral?

If the result is p > 0.05 we can conclude that users of the One-Sample t-Test genuinely and significantly agreed with the construct and it is not just, by chance that users of the One-Sample t-Test agreed with the construct.

4.4.2 Hypothesis Statements

- H_{11} (H1 Alternate): UPI significantly and positively impacts perceived Operational Efficiency.
- H_{01} (H1 Null): UPI does not significantly impact Operational Efficiency.
- H_{12} (H2 Alternate): UPI significantly and positively influences Consumer Spending Behaviour.
- H_{02} (H2 Null): UPI does not significantly influence Consumer Spending Behaviour.
- H_{13} (H3 Alternate): UPI significantly and positively influences Consumer Trust and Satisfaction.
- H_{03} (H3 Null): UPI does not significantly influence Consumer Trust.

4.4.3 Results

Figure 7: SPSS One-Sample t-Test Results

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
C_MEAN	103	4.1262	.61992	.06108
D_MEAN	103	4.1650	.66809	.06583
E_MEAN	103	4.2209	.69160	.06815

One-Sample Test

Test Value = 3

	t	df	Significance One-Sided p	Significance Two-Sided p	Mean Difference	95% Confidence Interval of the Difference Lower	Upper
C_MEAN	18.437	102	<.001	<.001	1.12621	1.0051	1.2474
D_MEAN	17.698	102	<.001	<.001	1.16505	1.0345	1.2956
E_MEAN	17.916	102	<.001	<.001	1.22087	1.0857	1.3560

Own Source

Table 2: One-Sample t-Test Results (Test Value = 3.0)

Construct	N	Mean	Std. Deviation	t-value	df	Sig. (2-tailed)	Mean Difference
C_MEAN Operational Efficiency	103	4.1262	0.61992	18.437	102	< .001	1.12621
D_MEAN Spending Behaviour	103	4.1650	0.66809	17.698	102	< .001	1.16505
E_MEAN Trust and Satisfaction	103	4.2209	0.69160	17.916	102	< .001	1.22087

Own Source

4.4.4 Interpretation

H1 - Operational Efficiency (C_MEAN = 4.13, t = 18.437, p < .001)

The score for this is 4.13 out of 5. This tells us that people answered the questions about efficiency in a positive way. They mostly chose "Agree" or "Strongly Agree". The difference between the score and a neutral score is 1.13, which is a big difference. The t-value is 18.437, which's very strong. The p-value is less than 0.001, which means it is very unlikely that this result happened by chance.

People really, like using UPI. They do not kind of like it they really like it. UPI is fast and reliable and easy to use when people do things with their money. The efficiency of UPI is the foundation of everything we looked at. People think UPI is very efficient. That is why they like it so much. The efficiency of UPI is what makes it so good.

Decision: H_{01} is rejected. H_{11} is accepted. UPI significantly and positively impacts perceived Operational Efficiency.

H2 - Consumer Spending Behaviour (D_MEAN = 4.17, t = 17.698, p < .001)

The average score of 4.17 for the six things people do is really important because it shows that people are changing their behaviour in ways. People agree that UPI has changed the way they make payments online how often they do it how confident they. How they manage their money. They also think that UPI has changed how they use payments in their daily lives.

The average score is higher than the point by 1.165, which is a little more than how easy it is to use. This means that people are really changing their behaviour when it comes to money. It is as strong as or even stronger than how easy they think it is to use UPI. The score of 17.698 is one of the highest in this study, which's a big deal.

In terms UPI is not just a new way to pay for things. It has actually changed the way people handle their money. People are using payments instead of cash for things they used to pay for in cash. They are also making decisions quickly without having to think about it a lot. This is a change, in the way people behave not just a new tool they are using. UPI has really changed peoples behaviour and this is what we mean by behavioural transformation when we talk about UPI.

Decision: H_{02} is rejected. H_{12} is accepted. UPI significantly and positively influences Consumer Spending Behaviour.

H3 - Consumer Trust and Satisfaction (E_MEAN = 4.22, t = 17.916, p < .001)

The Consumer Trust and Satisfaction score is the highest in the study at 4.22. This score is 1.22 points higher than the score and it is very clear that this result is important.

It is great that the trust score is above 4.0 because UPI is a system that handles bank transactions in a country where people are getting more aware of fraud. This means that people who use UPI really trust it. They do not just use it once they keep using it because they believe in it.

People do not just use something. Then forget about it. They either really like it. They do not. The fact that people trust UPI is clear, from the fact that 90.3

percent of people said they would tell others to use it. When people say they would recommend UPI to others they are putting their reputation on the line. This shows that they really trust UPI and that is a thing.

Decision: H_{03} is rejected. H_{13} is accepted. UPI significantly and positively influences Consumer Trust and Satisfaction.

4.5 Correlation Analysis - Examining Relationships Among Constructs

4.5.1 Objective Background

Research Objective Addressed:

- Objective 2 (relationship between efficiency and spending behaviour)
- Objective 3 (relationship between behaviour and trust)
- Objective 4 (preparing for regression understanding predictor relationships)

Correlation analysis looks at how variables are connected to each other. We want to know what happens when one variable changes. Does another change too. If so does it get bigger or smaller? We also want to know how strong this connection is.The correlation coefficient gives us all these answers.

We used Spearmans rho to figure this out. Spearmans rho is a choice when we are working with ordinal data from a Likert scale. This is because it does not need the data to be normally distributed. We also calculated Pearson as a way to double check our results with Spearmans rho.

4.5.2 Results

Figure 8: SPSS Results of Correlation between C_Mean, D_Mean, E_Mean

Correlations

			C_MEAN	D_MEAN	E_MEAN
Spearman's rho	C_MEAN	Correlation Coefficient	1.000	.345***	.431***
		Sig. (2-tailed)	.	<.001	<.001
		N	103	103	103
	D_MEAN	Correlation Coefficient	.345***	1.000	.485***
		Sig. (2-tailed)	<.001	.	<.001
		N	103	103	103
	E_MEAN	Correlation Coefficient	.431***	.485***	1.000
		Sig. (2-tailed)	<.001	<.001	.
		N	103	103	103

***. Correlation is significant at the 0.001 level (2-tailed).

Own Source

4.5.3 Interpretation

Relationship 1 - Efficiency and Spending Behaviour (Rs = 0.345, p < .001)

There is a connection between how well users think UPI works and how it affects their spending habits. When people find UPI to be fast and easy to use they start to use it often for different things.

This makes sense because when UPI works well people are more likely to use it. If UPI is not reliable users will not want to use it for purchases. They will only switch from cash to UPI if it always works smoothly. The number 0.345 shows that there is a connection, between how well UPI works and how people use it but it is not the only reason people use UPI. UPI efficiency is important. It is not the only thing that affects how people use UPI.

Relationship 2 - Efficiency and Trust (Rs = 0.431, p < .001)

There is a strong connection between how well something runs and how much people trust it. This makes sense when you think about the quality of the service. When you use something like UPI and it works fast that is a good thing that happens to you. After it happens times you start to feel like you can trust it.

The number 0.365 helps show that this is true. It agrees that the connection, between operational efficiency and consumer trust is positive and pretty strong. Operational efficiency and consumer trust are related in a way.

Relationship 3 - Spending Behaviour and Trust (Rs = 0.485, Pearson r = 0.628)

This is the thing we found in the whole study. We looked at how people spend their money and how much they trust things. The number we got 0.628 shows that there is a connection between how people change the way they spend their money and how much they trust things.

This connection is really strong. It is twice as strong as the connection between how something works and how much people trust it which is 0.365.

When people use UPI to buy things they need every day like groceries pay for autos, subscriptions and send money to friends they start to trust UPI. They use UPI all the time so they trust UPI more. It is not just because UPI is fast. It is because people get used to using UPI every day. UPI becomes a part of their routine. People trust UPI because they depend on it to do things they need to do. They have experiences, with UPI. They trust UPI more when they use it all the time.

4.6 Chi-Square Tests of Independence - Hypotheses H4a to H4e

4.6.1 Objective Background

Research Objective Addressed: Objective 4 - To identify demographic associations with UPI-related behavioural outcomes.

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Chi-Square tests is used to check if there is a statistically significant relationship between two categorical variables. In this study five tests were conducted to examine whether selected demographic variables - age, location, gender, income, and occupation - significantly influenced selected UPI-related outcomes.

Hypothesis Framework for all five tests:

- H_0 = There is no significant relationship between the demographic variable and the UPI-related outcome.
- H_1 = There is a significant relationship between the demographic variable and the UPI-related outcome.
- Decision rule: If ($p < .05$), reject H_0, If ($p \geq .05$), accept H_0.

4.6.2 H4a - Age Group and Biggest Challenge Faced

Figure 9: SPSS Results of Chi-Square Age Group × Biggest UPI Challenge

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	16.794[a]	16	.399
Likelihood Ratio	20.603	16	.194
N of Valid Cases	103		

a. 18 cells (72.0%) have expected count less than 5. The minimum expected count is .09.

Own Sources

Interpretation:

$\chi^2 = 16.794$, $df = 16$, $p = .399$. Since $p = .399$ which is greater than the significance threshold of which is ($p = 0.05$), the null hypothesis is accepted. Age group does not significantly influence the type of challenge users face with UPI.

This is an interesting result. It shows that the problems a 20-year-old student faces are basically the same as the problems a 40-year- professional faces. Security and fraud concerns are a deal for people of all ages. We thought that older people might have a time with technology and that younger people might not worry as much about fraud but that is not what we found with security and fraud concerns being a major issue for security and fraud concerns, across the board.

4.6.3 H4b - Location Type and Biggest Challenge Faced

Figure 10: SPSS Results of Chi-Square - Location Type × Biggest UPI Challenge

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	15.152[a]	12	.233
Likelihood Ratio	13.358	12	.344
N of Valid Cases	103		

a. 12 cells (60.0%) have expected count less than 5. The minimum expected count is .09.

Own Source

Interpretation:

χ^2 = 15.152, df = 12, p = 0.233. Since p = .233 which is greater than the significance threshold of which is (p = 0.05), So null hypothesis is accepted. Location type whether urban, semi-urban, or rural does not significantly influence the type of challenge users face with UPI.

48 You would think that people who live in the rural areas have a time getting online and people who live in the city worry more about someone taking their things.. When we looked at the numbers we found out that this is not really true. The big problem of security and fraud is something that people everywhere worry about. This shows that people over are worried about security it is not just a problem in some places.

It is worth saying that we only talked to a people from small rural areas, which means we cannot be totally sure about our results. If we talk to people, from rural areas in the future we might get different answers.

4.6.4 H4c - Gender and Willingness to Recommend UPI

Figure 11: SPSS Results of Chi-Square - Gender × Would Recommend UPI to

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.111[a]	2	.946
Likelihood Ratio	.208	2	.901
N of Valid Cases	103		

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is .10.

Others

Own Source

Interpretation:

$\chi^2 = 0.111$, df = 2, p = .946. Since p = .946 which is greater than the significance threshold of which is (p = 0.05), So Null hypotheses accepted. This is the most decisive non-significant result in the study. A p-value of .946 means there is effectively zero statistical difference between male and female recommendation rates for UPI.Both male and female respondents recommend UPI at nearly identical rates approximately 90% each. This gender-neutral trust and satisfaction result is important for India's digital financial inclusion narrative. UPI has succeeded in earning the genuine confidence of female users, not just their adoption. The platform's ease of use and broad accessibility appear to have created an equally positive experience for women, which is a meaningful equity outcome.

4.6.5 H4d - Monthly Income and Savings Change Since Adopting UPI

Figure 12: SPSS Results of Chi-Square - Income Level × Change in Savings After UPI Adoption

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.780[a]	6	.706
Likelihood Ratio	4.128	6	.659
N of Valid Cases	103		

a. 5 cells (41.7%) have expected count less than 5. The minimum expected count is .43.

Own Source

Interpretation:

$\chi^2 = 3.780$, df = 6, p = .706 . The null hypothesis is accepted. Income level does not really affect whether a users savings go up down or stay the same after they start using UPI. People often think that those who earn more might save more because they can track their money easily or that those who earn less might save less because its easy to spend. That's not what the data shows. Most people across all income groups say their savings haven't changed much. This means that UPI doesn't automatically help people save more. It actually depends on how disciplined users are how well they understand money and how carefully they manage their finances not just how much they earn. Income level is not the factor here. UPI and income level both play a role. Not, in the way people commonly assume.

4.6.6 H4e - Occupation and Comfort with UPI Dependence

Figure 13: SPSS Results of Chi-Square Occupation × Comfort Level with UPI Dependence

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	16.934[a]	12	.152
Likelihood Ratio	17.553	12	.130
N of Valid Cases	103		

a. 13 cells (65.0%) have expected count less than 5. The minimum expected count is .21.

Own Source

Interpretation:

1

$\chi^2 = 16.934$, df = 12, p = .152 . The null hypothesis is accepted. The idea that UPI dependence is linked to what people do for a job's not true. What someone does for a living does not really affect how they feel about depending on UPI. Students and people with jobs and those who work for themselves all feel about the same about UPI. Most people said they are okay with depending on UPI or they do not really care. This tells us that depending on UPI is not something that people in certain jobs do. UPI dependence is the same for all kinds of people it does not matter what they do for work. UPI is something that people, from all walks of life are using and depending on.

4.7 Frequency Analysis - Biggest Challenge Faced

Figure 14: SPSS Result of Frequency Analysis - Biggest Challenge While Using UPI

What is the biggest challenge you face while using UPI?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Difficulty in resolving payment disputes	12	11.7	11.7	11.7
	Frequent transaction failures	9	8.7	8.7	20.4
	Internet connectivity issues	17	16.5	16.5	36.9
	No major challenges	17	16.5	16.5	53.4
	Security / fraud concerns	48	46.6	46.6	100.0
	Total	103	100.0	100.0	

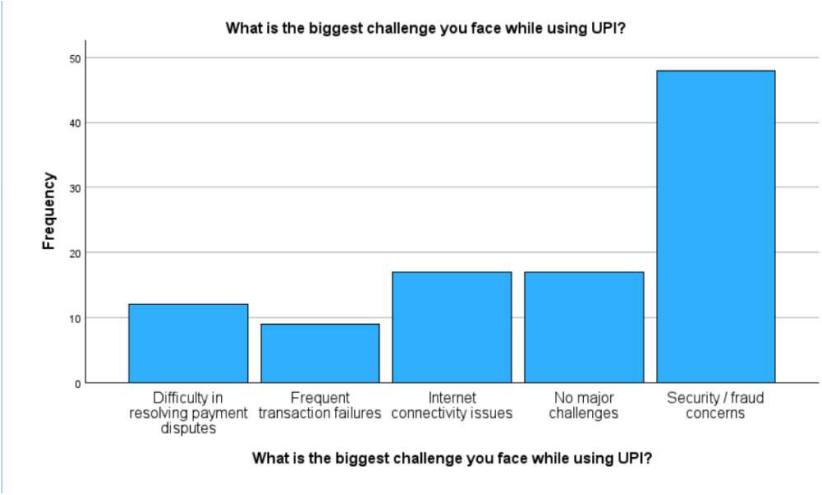
Own Source

Interpretation:

Security and fraud concerns are a problem for almost one in every two people who use UPI. A lot of people 46.6 percent think this is the challenge they face with UPI. This is than double the number of people who think something else is the biggest problem. We also found out that people from all ages and places are worried about security with UPI. This is a deal and we need to do something about it.

Some people, 16.5 percent say they do not have any problems with UPI. These people think UPI is easy to use. If we look at how these people use UPI and what they like about it we can get some ideas. We can use these ideas to make UPI better for the people who do have problems with it which's 83.5 percent of UPI users. We want to make UPI better for all UPI users so we need to listen to the people who like UPI and the people who do not like UPI. We need to make UPI better for all UPI users, including the people who have problems, with UPI.

Figure 15: Bar Chart of Challenges face while using UPI



Own Source

4.8 Multiple Linear Regression - Hypothesis H5

4.8.1 Objective Background

Research Objective Addressed: Objective 5 - To understand the combined and individual effect of Operational Efficiency and Consumer Spending Behaviour on Consumer Trust and Satisfaction.

Multiple linear regression is the most analytically advanced test in this study. It quantifies how much of the variation in Consumer Trust can be explained by Operational Efficiency and Consumer Spending Behaviour together and individually.

H_{15} (Alternate): Operational Efficiency and Consumer Spending Behaviour significantly predict Consumer Trust and Satisfaction.

H_{05} (Null): Operational Efficiency and Consumer Spending Behaviour do not significantly predict Consumer Trust and Satisfaction.

Model Setup:

- Dependent Variable: E_MEAN (Consumer Trust and Satisfaction)
- Independent Variable 1: C_MEAN (Operational Efficiency)
- Independent Variable 2: D_MEAN (Consumer Spending Behaviour)

4.8.2 Model Summary

Figure 16: SPSS Result of Regression Model Summary

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.656[a]	.431	.419	.52699	.431	37.837	2	100	<.001

a. Predictors: (Constant), D_MEAN, C_MEAN
b. Dependent Variable: E_MEAN

Own Source

R = 0.656 is the multiple correlation coefficient the combined correlation of both predictors with trust. This represents a moderately strong combined predictive relationship.

R^2 = 0.431 means that Operational Efficiency and Consumer Spending Behaviour together explain 43.1% of the total variance in Consumer Trust and Satisfaction. For a behavioural study where, human outcomes are shaped by dozens of overlapping factors, explaining 43.1% with just two predictors is a strong and meaningful result.

Adjusted R^2 = 0.419 is very close to R^2 , confirming that the model is not artificially inflated. It would perform almost identically on a new comparable sample.

The **F-statistic of 37.837 with p < .001** confirms that the overall regression model is statistically significant. The two predictors collectively explain a meaningful and non-random portion of trust variance.

4.8.3 ANOVA Table

Figure 17: SPSS Result ANOVA Table

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.016	2	10.508	37.837	<.001[b]
	Residual	27.772	100	.278		
	Total	48.788	102			

a. Dependent Variable: E_MEAN
b. Predictors: (Constant), D_MEAN, C_MEAN

Own Source

The regression sum of squares (21.016) is substantially larger than the average residual variance (0.278 per degree of freedom). This large ratio produces the F-statistic of 37.837, confirming that the model explains a highly significant portion of trust variance.

4.8.4 Regression Coefficients

Figure 18: SPSS Result Regression Coefficients Table

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	.842	.422		1.992	.049		
	C_MEAN	.224	.088	.201	2.545	.012	.916	1.091
	D_MEAN	.590	.082	.570	7.226	<.001	.916	1.091

a. Dependent Variable: E_MEAN

Own Source

4.8.5 Interpretation of Standardized Beta Values

The standardized Beta values (β) are the most important numbers in the regression table because they allow direct comparison of each predictor's relative contribution to trust, regardless of scale.

C_MEAN - Operational Efficiency: β = 0.201 , t = 2.545 , p = .012

Operational Efficiency is a statistically significant predictor of Consumer Trust ($p = .012 < .05$). For every one standard deviation increase, in perceived efficiency trust goes up by 0.201 deviations if we keep spending behaviour the same. This shows that how well a platform works really matters. When a platform is fast and reliable it makes users more confident.

D_MEAN - Consumer Spending Behaviour: β = 0.570 , t = 7.226 , p < .001

Consumer Spending Behaviour is a highly significant predictor with a Beta of 0.570 and a t-value of 7.226. When we look at transformation we see that for every one standard deviation increase trust goes up by 0.570 standard deviations. This is a deal. It is three times the effect we see from efficiency.

This is the important thing we found out from the study. The Beta for Spending Behaviour is 0.570, which's 2.84 times bigger than the Beta for Efficiency which is 0.201. What this means is that Behavioural transformation is more important for building trust than just being good at operations.

So what does this mean for companies? It means that if they want to build trust with their customers they should not just focus on making UPI work faster and better. They should also make sure that Behavioural transformation is a part of it. This means making UPI a part of peoples financial lives making it useful and present for them. Behavioural transformation is key to building trust.

Decision: H_{05} is rejected. H_{15} is accepted. Operational Efficiency and Consumer Spending Behaviour together significantly predict Consumer Trust and Satisfaction ($R^2 = 0.431$, $F = 37.837$, $p < .001$).

4.9 Discussion of Findings

4.9.1 UPI Has Genuinely Delivered Operational Excellence

The score for Operational Efficiency is 4.13, which's very good. This score is supported by a t-value of 18.437 and a Cronbachs Alpha of 0.799. This means that people in India think that UPI is an efficient way to make digital payments. UPI has five things about it: it is fast, reliable, easy to use, convenient and accessible. People like all of these things about UPI.

What is really important about this finding is that people like all of these things about UPI, not one or two. They do not just like some things. Not care about others. People think that UPI is good in every way. This means that UPI gives people an good experience, not a mixed one.

People who use UPI like Operational Efficiency of UPI they really like it. This is not something that people say it is something that they really experience. The people who made UPI like NPCI and partner banks invested in the technology to make it work well. This was an idea because Operational Efficiency of UPI is something that people really like. The 103 people, in this

study liked Operational Efficiency of UPI. They are all different types of people so it seems like most people would like Operational Efficiency of UPI.

4.9.2 UPI Is a Behavioural Transformation Engine

The result of D_MEAN is 4.17 with t = 17.698 and p <.001 which's the most important result of this study. A mean above 4.0 across six dimensions means that users are strongly agreeing that UPI has changed their financial behaviour. This is not just people using UPI because it is easy. This is people actually changing the way they behave with money.

Consider what this means in life. A user whose D_MEAN is above 4.0 is making payments much more often than before. They are making purchases through UPI that they would not have made with cash. They are feeling more confident when spending money digitally. They are using UPI for different types of transactions. They are tracking how much they spend through UPI records. They are saying that the way they think about money has completely changed.

Each of these changes on its own would be interesting. When you put them all together they show that users are completely changing the way they interact with money in their daily lives. This result shows that the main idea of the study is correct: UPI is not a convenient way to pay it is actually changing peoples behaviour.

However there is one thing to be careful about. The result about savings from Figure 18 is not as clear. Only a small number of people who answered the survey said they are saving money since they started using UPI. This makes sense when you think about the "pain of payment" theory. When it is easy to pay for things people might spend money without being more careful, about saving.

4.9.3 Trust Has Been Earned Through Experience

The average score for UPI is 4.22, which's the highest average score in the study. This score along with a 90.3 percent recommendation rate shows that

people really trust UPI, a financial platform. This is not just people being okay with UPI it is people really believing in it.

We can see why people trust UPI when we look at how their spending habits and trust're connected. There is a link between the two with a correlation of 0.628. People trust UPI because they use it all the time not just because it works technically. When people use UPI every day they start to trust it because they have good experiences with it.

This is important to know because it shows that trust in finance is not something that people already have when they start using a platform. Instead trust grows as people use the platform more and more. The more people use UPI the more they trust it. When UPI becomes a part of peoples daily financial routine their trust, in it becomes very strong.

The 90.3 percent recommendation rate shows that people really trust UPI. When someone recommends UPI to a friend or family member they are putting their reputation on the line. This is the way that people can show they trust something. UPI gets a 90.3 percent recommendation rate, which means that people are willing to recommend it to others and that is a deal.

4.9.4 Security Is UPI's One Universal Challenge

The important thing that we found out in this study is not in any of the special tests we did. It is in Figure 18. We saw that 46.6% of all users no matter what group they belong to think that security and fraud are the problems they have with UPI.This is true for everyone, which's the main point. People being worried about security is not a problem for some groups. It is a problem for the platform. Whether you are a 20-year- student in Mumbai or a 40-year-old professional in a smaller city people are just as afraid of fraud.

This does not mean that people do not trust UPI overall. The scores that show how much people trust UPI are very high. It shows that people can trust something and still be worried about it at the same time. People love how easy UPI is to use. They trust that it will work but they are still careful, about the risk

of fraud. This is what people are like when they use payments and they know what they are doing. They trust UPI. They are also careful.

4.9.5 Behavioural Integration Predicts Trust Far More Powerfully Than Efficiency

The study found something important. It said that β_Spending is 0.570 and β_Efficiency is 0.201. This means that how people spend their money is three times more important than how well a system works when it comes to people trusting a company.

People usually think that making a system work better is the important thing, for fintech companies.. This study says that is not true. It is necessary for a system to work well. It is not enough.The platform that people trust the most is the one that's a part of their daily money habits, not the one that is the fastest.

So what does this mean for people who make products? It means they should focus on things that help people use the product more like tools to track spending and savings and reminders to help people make money habits. They should not just focus on making the product work fast and be available all the time.

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4.10 Recommendations

Based on the complete statistical analysis and discussion, the following data-driven recommendations are presented.

Recommendation 1 : Make Security the Platform's Highest Priority

Security and fraud are the concerns for 46.6 percent of users. This problem is affecting everyone no matter who are they or where they come are from. We need to take a look this as an issue that affects the whole platform, not just a small problem for some customers.

We should do some things to make this better. We can use computers to watch for transactions and stop them before they happen. When someone is sending a lot of money to someone for the first time we should make them wait a little

while before the money is sent. We need to make a website where people can report problems with their banks and get help quickly. Security and fraud are problems. We should also tell people about security and fraud in languages so everyone, in India can understand, whether they live in a city or a small town. Security and fraud are issues.

Recommendation 2 : Add Financial Management Features to UPI Apps

People do things with their money in ways and that is a big part of whether we can trust them. The way people spend their money has changed a lot because of UPI. So companies that deal with money and technology have a chance to help people make choices about how they spend their money with UPI.

They can add some tools to the UPI system. For example they can show people how much they spent each month on UPI. They can also see how much they spent on things like food or clothes using UPI. People can even decide how much they want to spend and set a limit on UPI. They can track their spending on food, clothes and other things with UPI. The UPI system can also automatically save money for them. It can help people set goals like saving for a purchase using UPI. This way people can use the UPI system. Still be careful with their money.

Recommendation 3 : Resolve Disputes Faster and More Transparently

Many people have trouble when they have a problem with UPI. In fact 11.7 percent of responses said that fixing disputes with UPI is a challenge. Banks and the people who help us with payments need to make the process of dealing with UPI complaints a lot. When someone has a problem with UPI the bank should fix the problem within 48 hours. They should also tell people what is going on with their problem all the time. Banks should have teams that know how to handle UPI problems. This will make things better, for people who use UPI. UPI users will be happy if banks can do this. UPI is used by a lot of people and banks need to make UPI complaint handling better.

Recommendation 4 : We need to teach people about Digital Financial Literacy when they use UPI. Lots of people use UPI. They do not really save more

money after they start using UPI. This is because using UPI does not automatically mean people can manage their money better.

Companies that make UPI apps should help people learn about money management and how to use UPI to save money. They can add some lessons to the UPI apps. They can teach Digital Financial Literacy, in schools and colleges.

This way people who use UPI will know how to make choices about their money with Digital Financial Literacy and UPI. People will be able to use UPI and Digital Financial Literacy to save money.

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CHAPTER 5: CONCLUSION

5.1 Overview

When this study began the main question was simple, yet really important: has UPI really changed the way Indian consumers pay and spend money and trust systems? We found out a lot more than numbers. This is a story about how one simple payment system, UPI has changed the way millions of Indians deal with money.

UPI is easy to use. UPI includes everyone. UPI has quietly made a difference in the lives of people from all walks of life.

This part of the story, about UPI sums up the points of the study about UPI. It looks at what the results of the study on UPI mean for the people who use UPI. The study on UPI also talks about what it could not do. The study, on UPI gives some thoughts on where Indias payment journey using UPI's going.

5.2 Summary of Key Findings

The results indicate that the perceptions of UPI by the respondents have been largely positive. The users perceive it as a quick, safe, and convenient means of payments which have made their transactions easy. Such perceptions have been uniform irrespective of the age, profession, and domicile of the people.

This research also indicates the influence of UPI on the purchasing behavior of consumers. The convenience of using UPI and making payments instantly have resulted in frequent small-value purchases by users. Nevertheless, it does not mean overspending but is rather an indicator of increased convenience in financial transactions.

The results also show that there is a lot of trust among the users for the system known as UPI and that they are also satisfied with the system’s performance. In general, the results reveal that efficiency is critical in generating trust, improving user satisfaction, and motivating the use of UPI.

5.3 Implications

This finding carries several significant implications for policy makers, banks, and the general public. As the participants viewed UPI as a quick, secure, and efficient payment system, it indicates that the efforts made by RBI and NPCI have been fruitful in encouraging people to adopt digital payments through various strata of society. The efforts should continue in the future to maintain the perception, which includes investing in secure digital platforms and preventing any kind of disruption in the payment process.

Additionally, the study showed that operational efficiency has positive effects on consumer trust and satisfaction. Therefore, banks and fintech firms must concentrate on improving operational efficiency and making systems more reliable, fast, and secure in order to increase consumers' trust in UPI and make them use it for a longer time period. Moreover, the fact that UPI has had an impact on spending behavior shows that spending summary, expense tracking, and budgeting options can be added in order to facilitate financial management for consumers using UPI.

The results show that despite the fastness and convenience provided through the use of UPI, it is important to note that the right use of the service along with monitoring of spending will ensure financial discipline on the part of the consumer.

5.4 Limitations

Like many researches, there are some limitations to this study. Firstly, since the design of this study is based on cross-section data, the results can change over time due to the changing behaviour of consumers and their trust in UPI services. Secondly, the samples included a majority of the respondents who lived in urban and semi-urban locations and therefore the results of this study cannot be generalised to rural areas. Thirdly, this study has used self-reporting which means that the results can be biased.

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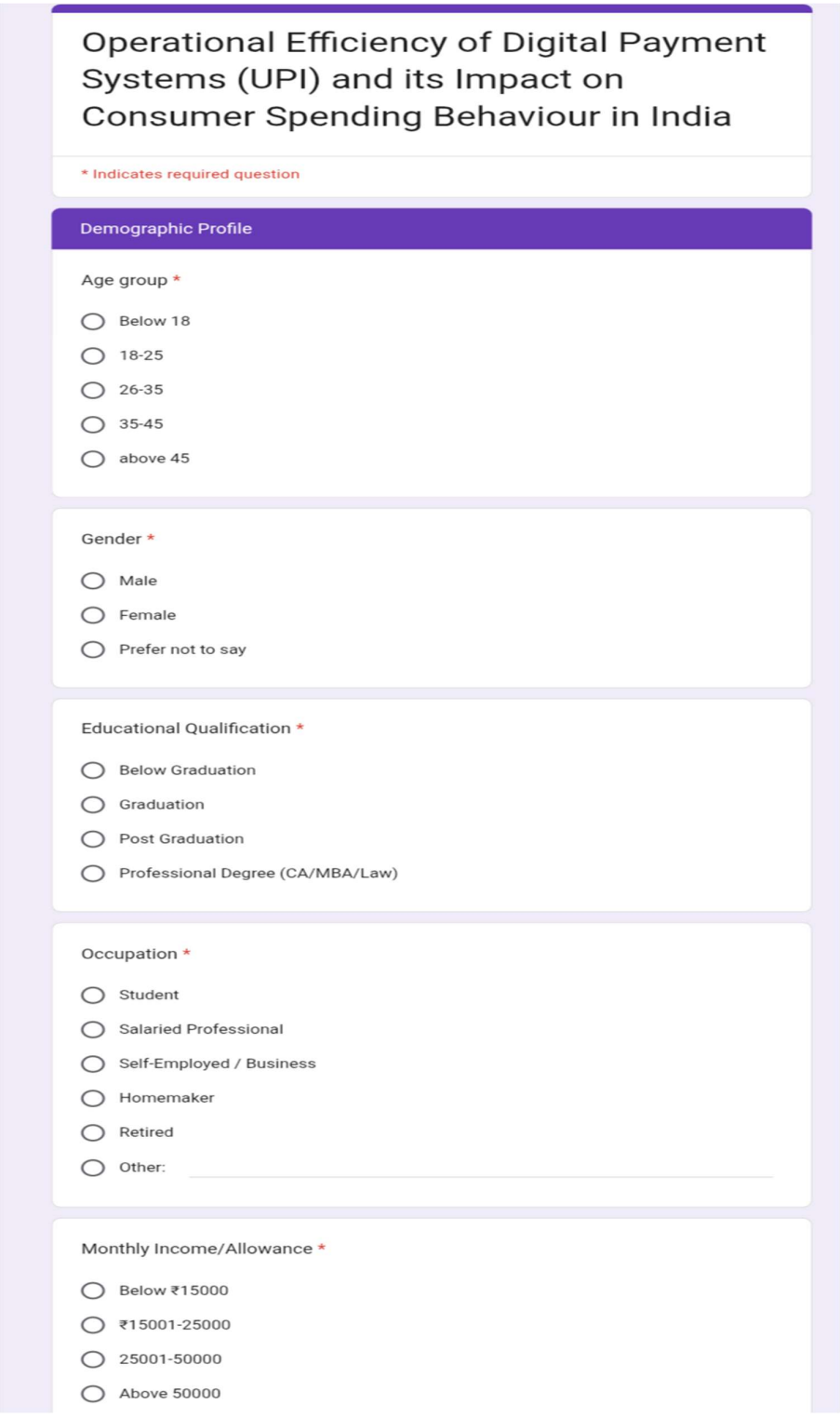
ANNEXURE



Operational Efficiency of Digital Payment Systems (UPI) and its Impact on Consumer Spending Behaviour in India

* Indicates required question

Demographic Profile

Age group *

- Below 18
- 18-25
- 26-35
- 35-45
- above 45

Gender *

- Male
- Female
- Prefer not to say

Educational Qualification *

- Below Graduation
- Graduation
- Post Graduation
- Professional Degree (CA/MBA/Law)

Occupation *

- Student
- Salaried Professional
- Self-Employed / Business
- Homemaker
- Retired
- Other:

Monthly Income/Allowance *

- Below ₹15000
- ₹15001-25000
- 25001-50000
- Above 50000

UPI Usage Pattern

How long have you been using UPI? *

- ◯ Less than 6 months
- ◯ 6 months – 1 year
- ◯ 1–3 years
- ◯ More than 3 years

Which UPI application do you primarily use? *

- ◯ Google Pay (GPay)
- ◯ PhonePe
- ◯ Paytm
- ◯ BHIM
- ◯ Amazon Pay
- ◯ Other: _____

How frequently do you use UPI per week? *

- ◯ Multiple times daily
- ◯ Once daily
- ◯ 4–6 times a week
- ◯ 2–3 times a week
- ◯ Once a week or less

What is your average UPI transaction amount? *

- ◯ Below ₹200
- ◯ ₹201 – ₹500
- ◯ ₹501 – ₹2,000
- ◯ ₹2,001 – ₹5,000
- ◯ Above ₹5,000

For which purposes do you use UPI? (Select all that apply)

- ☐ Grocery / Supermarket
- ☐ Food & Dining / Restaurants
- ☐ Online Shopping (Amazon, Flipkart, Meesho, etc.)
- ☐ Utility Bill Payments (Electricity, Water, Mobile Recharge)
- ☐ Transportation (Auto, Cab, Metro)
- ☐ Medical / Pharmacy
- ☐ Entertainment (Movies, OTT subscriptions)
- ☐ Sending money to family / friends

Operational Efficiency of Digital Payment Systems (UPI) and its Impact on Consumer Spending Behaviour in India

* Indicates required question

Operational Efficiency of UPI.

Rate the following statements based on your experience with UPI's operational efficiency: *
(1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)

	1	2	3	4	5
UPI transactions are completed instantly without noticeable delay	○	○	○	○	○
UPI is available and functional 24x7 whenever I need it	○	○	○	○	○
I rarely experience failed or declined transactions on UPI	○	○	○	○	○
UPI is easy to set up and use, even without technical knowledge	○	○	○	○	○
UPI can be used for a wide variety of payment needs in daily life	○	○	○	○	○

Operational Efficiency of Digital Payment Systems (UPI) and its Impact on Consumer Spending Behaviour in India

* Indicates required question

Consumer Trust and Satisfaction

Rate the following statements regarding your trust and satisfaction with UPI: *
(1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)

	1	2	3	4	5
I trust UPI to process my financial transactions safely and accurately	○	○	○	○	○
I am satisfied with my overall experience of using UPI	○	○	○	○	○
I am aware of the security risks and frauds associated with UPI	○	○	○	○	○
The speed and reliability of UPI is the main reason I am satisfied with and trust the platform	○	○	○	○	○

Have you personally experienced a UPI-related fraud or scam attempt? *

- ○ Yes
- ○ No

Impact on Consumer Spending Behavior

Rate the following statements based on how UPI has affected your spending behavior: *
(1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)

	1	2	3	4	5
Since using UPI, I make purchases more frequently than before	○	○	○	○	○
UPI has made me more likely to make unplanned (impulse) purchases	○	○	○	○	○
My reliance on physical cash has significantly reduced since adopting UPI	○	○	○	○	○
My overall monthly spending has increased since I started using UPI	○	○	○	○	○
I spend money more freely via UPI compared to paying with cash	○	○	○	○	○
UPI transaction history helps me track and manage my monthly expenses better	○	○	○	○	○

Challenges and Future Outlook

What is the biggest challenge you face while using UPI? *

- ◯ Frequent transaction failures
- ◯ Security / fraud concerns
- ◯ Internet connectivity issues
- ◯ Difficulty in resolving payment disputes
- ◯ No major challenges

Since using UPI, your savings have: *

- ◯ Increased
- ◯ Decreased
- ◯ Remained the same

How do you feel about your dependence on UPI? *

- ◯ Comfortable — I see no issues
- ◯ Slightly concerned about over-dependence
- ◯ Very concerned — I would face problems if UPI went down
- ◯ I maintain a healthy balance between cash and UPI

Would you recommend UPI to others? *

- ◯ Yes
- ◯ No

Overall, how would you rate your satisfaction with UPI? *

1	2	3	4	5
◯	◯	◯	◯	◯