

“The Impact of Unified Payment Interface (UPI) On Small Business: A Study with Reference to Bangalore City”

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CHAPTER – 1 INTRODUCTION

UPI, abbreviation for Unified Payment Interface is an instant real-time payment system developed by National Payments Corporation of India facilitating inter-bank transactions. The interface is regulated by the Reserve Bank of India and works by instantly transferring funds between two bank accounts on a mobile platform. As of March 2019 there are 141 banks live on UPI with a monthly volume of 799.54 million transactions and a value of ₹1.334 trillion (US\$19 billion). UPI witnessed 1,029.44 crore transactions till August 2019. The mobile-only payment system helped transact a total of ₹17.29-lakh crore during the 37 months of operation starting from 2016.

Participants in UPI

- Payer PSP
- Payee PSP
- Remitter Bank
- Beneficiary Bank
- NPCI
- Bank Account holders
- Merchants

Unified Payments Interface is a real time inter-bank payment system that allows sending or requesting money. Any UPI client app may be used and multiple bank accounts may be linked to single app. Money can be sent or requested with the following methods:

1. **QR Code:** By scanning the QR code displayed at various merchant stores and confirming the amount by entering the MPIN in your UPI payments app. As per the latest UPI 2.0 version, you don't have to enter the passcode, instead, you can use signed QR & intent.
2. **VPA id:** You have to share your VPA id, the store will then initiate the payment process. You will receive a notification on your mobile, you have to confirm the transaction by entering your MPIN in UPI App. This type of method, you will find in E-commerce websites like Amazon or Flipkart.
3. **Mobile Number:** You can send money to a mobile number linked to any Bank Account by sharing MMID.
4. **Aadhaar Number:** You can send and receive money by sharing the Aadhaar Number linked Bank Account. You have to scan the fingerprint for transferring money by this process.
5. **Sharing account Number & IFSC:** This is a very common method of transferring money between the account numbers of different Banks. This method is used particularly when the receiving party does not use any of the UPI apps.
6. **Contact Less or Audio NFC Technology:** The contactless method is the most futuristic and innovative method, for transferring money using the Audio NFC Technology. Here, you do not have to share any VPA id or have to confirm any two factors authentication. Instead, an ultra- high-frequency sound wave (Near Field Communication sensor) communicates between the two UPI enabled devices (now available only in high-end smartphones) and matching the wavelength of two devices can authenticate the money transfer. Google Pay, PhonePe mobile payments app Cash Mode works using this method.

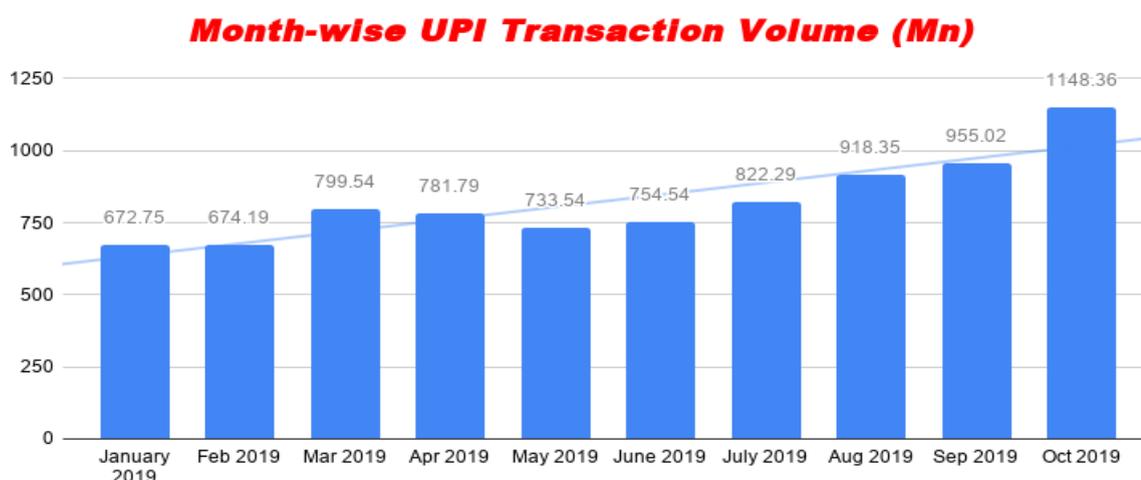
India has now crossed more than 1200 million active mobile users and mobile Payment apps are getting huge impetus after the Government of India initiated several measures to boost digital payment solutions.

The success of UPI Payments in India has led to the launch of UPI 2.0 by the National Payment Corporation of India (NPCI).

UPI 2.0 is the latest version of UPI launched by NPCI. Some new features have been included in the new UPI version. Some of the latest features included in UPI 2.0 is as under:

- You can now link the Over Draft account i.e Credit account with UPI, which was not possible previously.
- More secure QR code payment by additional signed QR form. No passcode required at the time of QR scanning.
- Pre-authorized debit mandate to debit the account later. This option enables Banks to create a Pay Later option at payment gateway.
- Under the UPI 2.0 framework, you can now subscribe to Initial Public Offerings (IPO).

The following graph shows the month wise UPI transactions in India in terms of volume (million):



We can clearly see that there is an upward trend in the volume of UPI transactions in India, with the government of India certainly asking the people to switch to digital payment methods like Internet Banking and of course UPI itself. UPI

Payments can be considered as a positive step by the government and RBI in pushing towards digital payment/cashless economy.

Several internet merchant websites like Amazon, Ola, Uber are also lining up to launch their UPI App in India. Popular messaging app WhatsApp has also cleared RBI's data localization norms and likely to launch its UPI Payment App WhatsApp Pay very soon partnered with ICICI Bank. As per the latest updates government is making the QR code-based payment system mandatory at all shops, therefore we might witness rapid increase in the UPI Payment system in India's retail segment.

FEATURES AND FACTS OF UPI:

- The maximum upper limit of UPI decided by the NPCI is Rs.1.00 Lacs.
- As per the latest RBI guidelines, you can interlink all your existing KYC complied e- wallet account. Though this service has started by only a few UPI App provider in India. Maybe in the future, we will find more UPI app integrates interoperability of mobile wallet.
- You can initiate a maximum of 20 transactions in 24 hours.
- All the UPI transactions will complete on a real-time basis.
- UPI and IMPS work on the same platforms, but UPI is more user-friendly and easy to understand.
- As of October 2019, 141 Banks in India now participate in UPI transactions.
- Anyone can add any numbers of Bank account using any Bank's UPI payments app
- Anyone can have multiple UPI VPA ID.
- As per RBI guidelines, only commercial banks can act as a payment system provider (PSP) in UPI transaction.
- For merchants, the Government is abolishing all the transaction charges for the payments made using UPI & QR codes at the business which have more than 50 crores annual turnover.

UPI, similar to all other types of payment methods has both pros and cons. Some of the advantages and disadvantages of UPI are as follows:

ADVANTAGES OF UPI:

Benefits for consumers:

- **Secure payment:** UPI payments are one of the safest modes of payments that doesn't require you to share your debit card details. Payment is protected by UPI PIN and specific apps have an extra pin for more protection. (debit card details are only required during set up)
- **No charges:** UPI transactions are free of cost and does not charge any extra charges in the form of taxes like in the case of NEFT or IMPS.
- **Real-time payment:** Payment or transfer of money takes place on a real time basis unlike NEFT. It literally takes just seconds to complete a transaction and is one of the best alternatives of cash.
- **Easy to use:** UPI payments can be made easily. The only thing you require is the UPI id of the receiver or the contact number of the other person using similar UPI app. In case the contact number is unknown, money can be transferred with the account number and IFS Code.
- **UPI maximum bank support:** Majority of the recognised banks in India have joined the UPI payment platform making it available to customers of almost all the banks in India. Around 141 banks have already joined UPI payment platform.

- **Cashback Offers:** One of the most important feature of this UPI apps is that it gives you cashback on the transactions above a stipulated limit or when you recharge or make bill payments via the app. People are also entitled to cashback offers on special occasion such as Diwali or Christmas.
- **Variety of services:** UPI apps can be used to make bill payment, recharge mobile for themselves and others, make bank transfer, book train and flights and also make donations to Chief minister's distress relief fund.

Benefits for banks:

- Single click Two Factor authentication
- Universal Application for transaction
- Leveraging existing infrastructure
- Safer, Secured and Innovative
- Payment basis Single/ Unique Identifier
- Enable seamless merchant transactions

Benefits for Merchants:

- Seamless fund collection from customers - single identifiers
- No risk of storing customer's virtual address like in Cards
- Tap customers not having credit/debit cards
- Suitable for e-Com & m-Com transaction
- Resolves the COD collection problem
- Single click 2FA facility to the customer - seamless Pull
- In-App Payments (IAP)

DISADVANTAGES OF UPI:

- **Possibility of Hacking:** UPI apps are made safe by the use of UPI pin and specific app pin, but this information once shared by giving permission to other apps to your phone can be used against you for the purpose of hacking. It is advised to never share your UPI pin, date of birth or debit card details.
- **Payment Delay:** Sometimes UPI payments take time to complete and you might get a message showing processing which happens when the server of sending or receiver bank is down. Usually, the money gets credited to the receivers account after some time.
- **One time Transfer Limit:** The maximum amount that you can transfer at one go is Rs100000. It may not be suitable for businesses carrying forward business transaction in figures above Rs100000.
- **Doesn't work on slow internet:** One thing that you don't want while transferring money through UPI is a slow internet connection. Slow internet connection and poor GPS connection may hinder the money transfer.
- **Low number PIN:** As said earlier UPI uses UPI PIN and apps pin for protection but the pin is usually of 4-6 digits and can be hacked if the pin is known by others. So make sure to never share the UPI PIN with others.

With the implementation of the Unified Payment Interface or UPI platform, several Indian Banks and various third-party companies have introduced numerous mobile payment apps in India. You can easily find the list of such UPI payments app in the Google Play Store or iOS app store. These UPI payment apps integrate the UPI platform to send and receive

money between the UPI linked bank accounts.

After the launch of NPCI 's UPI Payment platform, almost all Indian Banks have introduced their own UPI payments App integrating the BHIM-UPI platform. Not only the Indian Banks, but several other third-party companies have also created their own UPI payments app using UPI's API and partnering with any Indian Bank. As of October 2019, 141 Banks have already joined in UPI payment platform.

Some of the commonly used UPI apps in BANGALORE and all over India are:

1. Google Pay:

Google Pay (formerly known as Tez) is number one in this list. Google Pay is the most innovative and unique UPI payment app in India launched by Google. Google Pay also leads in India's UPI transaction both in terms of Transaction Value and volume. Google Pay has more than 45 million active monthly users in India.

Google Pay has tied up with 4 PSP banks in India namely SBI, ICICI, Axis Bank & HDFC Bank to provide VPA service in India. This payment app does not have any wallet option, therefore, no KYC documents are needed to operate this app, only you need a bank account and your mobile number should link to this account. You can create VPA id by installing the Google Pay App and transaction MPIN by authenticating the debit card linked to your Account. The VPA id will be your Gmail id @hdfc ,sbi, axis or ICICI.

Google Pay is the first UPI app that enables Proximity feature (NFC Technology) in its platform. Google Pay simplified the NFC Technology and introduce a technology that can capture the ultrasonic wavelength in the Phone's Mic and speaker (Called Audio QR Technology). Therefore, any smartphone can be enabled to communicate using Audio QR Technology using ultra-high-frequency sound waves. Currently, only Cash Mode works using this method.

Now you can add BHIM UPI ID in Google Play as a payment method in India for purchasing games, apps, and in-app content. Your VPA id will be stored in the Google Account and it can be used where Google Pay is accepted. You can also set up Google Pay for your online business. Google Pay has now more than 2000 online merchant partners in India. As of July 2019, Google Pay has more than 35% of the market share in UPI transactions with 320M transactions in terms of volume & 61000 crores in terms of value.

Features:

- Proximity features (Audio NFC Technology) in Cash Mode Transactions.
- No Wallet option, money can be directly debited and transferred to any Bank Account you wish. Therefore, no KYC documents are required.
- Best reward programs and offers amongst the all UPI payments app in India.
- In-App Google Play and Google Ad Payment option.
- Add any UPI participating Bank Accounts in India.
- Chat before pay.
- Google Pay Safe shield. Now you can secure your UPI payments using biometrics. Google Pay adds biometrics API for its latest version of Android 10 devices.
- Spam Warning, you may block any unwanted UPI request which seems like fraud.

- Excellent UI and user-friendly navigation.
- Transfer money between UPI id or QR Code
- In-app payments for hundreds of partnered merchants.
- Integrate Google Pay API for merchant set up.

2. PhonePe:

PhonePe is a Bangalore based UPI payments App launched in 2016. This payments App is now acquired by e-commerce giant Flipkart. PhonePe is the first UPI Payment platform in India about to be integrated as a payment option in Walmart India's "B2B Cash & Carry Stores". PhonePe is partnered with YesBank to provide UPI payment service in India. As of August 2019 data PhonePe has a 37.3% market share in UPI transaction volume. You can link your existing Jio Money, Freecharge and Airtel Money e-wallet with Phone Pe App and seamlessly transfer money between these wallets.

Features:

- Most popular UPI payments app in India.
- Interoperability amongst the e-wallet providers in India.
- Purchase Gold using PhonePe Wallets.
- Excellent Cash Back and reward programs across several merchant websites
- You can use the PhonePe Wallet option in most of Indian E-commerce Websites Payment gateway.
- You can pay credit card bills using the Phone Pe UPI App.
- Money transfer using UPI limit up to Rs.1.00 Lacs.
- Can integrate Jio Money with Phone Pe Wallet.
- Excellent UI
- A user can access multiple Bank Accounts using Phone Pe UPI App.

3. Paytm App:

India's largest digital wallet service provider and most downloaded UPI app in both Android and iOS platforms. Paytm was the pioneer of digital payment service in India and one of the best UPI app in India. The App has excellent UI and integrates many services in a single app platform. As of August 2019 data, Paytm accounts for around 5.93% market share in overall UPI transactions and dominates QR code-based offline transaction market in India. (August 2019)

Features:

- Most popular money transfer app in India.
- Integrates many features in a single platform. You can create the Paytm Payment Bank Account after full verification of KYC.
- Rupay Virtual Debit Card linked with Paytm Payment Bank.
- Credit Card bill payments.

- Access Paytm Online eCommerce store directly from Paytm App or Paytm Mall.
- Transfer money using the QR code or sharing the Payment link.
- Buy Now Pay Later service for ICICI Bank customers.

4. Freecharge Payment App:

Freecharge is also a very popular UPI money transfer app in India for its several cashback and in-app discounts and offers. You can get your own @freecharge UPI Id using this App. You can add multiple Bank Account linked with the mobile number registered for the Freecharge App. You can also create a FreeCharge mobile wallet by uploading some KYC documents. This Gurgaon based Fintech startup now is acquired by Axis Bank.

Features:

- One of the highest-rated money transfers UPI app in both the App Store and Play Store.
- Get your own @freecharge UPI id powered by Axis Bank.
- In-App merchant discounts and offers.
- Send money using the QR code.
- Invest in Direct Mutual Funds.

5. PayZapp by HDFC Bank:

Another UPI payments app cum digital wallet offered by HDFC Bank in India is PayZapp by HDFC Bank. This mobile Payment app is also very popular in India due to its numerous cashback offers across different merchant sites. You can also get a Visa Virtual Debit card for online payments.

Features:

- In-App virtual Visa Debit card for online transactions.
- Proximity Payments (Soundwave communication similar to Google Pay) Soon to be launched.
- Huge Cashback and rewards programs across different merchant sites. Visit here for details.
- Pay Zapp wallet option on all e-commerce sites in India.
- Option for Pay Zapp business Account.
- VPA ID and QR code money transfer option.

6. Pockets by ICICI Bank:

Digital wallet cum UPI payments app offered by ICICI Bank. ICICI Bank so far is the most innovative Bank amongst the Indian Banks and Pockets Digital wallet is one such innovation, first launched by ICICI Bank in India. ICICI Bank's Pockets can also be used as a Digital Bank Account.

Features:

- Virtual digital wallet with an option to convert into a savings account.
- Free virtual Visa Debit Card, users can also get a physical debit card. (Domestic Card)
- Pockets' wallets can also be accessed with ICICI Bank Net Banking.

- Easy interface with one click add fund option.
- VPA ID and QR code money transfer option.
- Uses similar Audio QR technology Tonetag for pairing devices and making a contactless payment.
- Numerous deals and discounts with various merchants.

7. **Mobi Kwik:**

This Gurgaon based wallet cum UPI payment App is one of the most popular money transfer App in India and competes with other major UPI Apps like Google Pay, PhonePe and Paytm. Mobi Kwik not only provides the UPI transaction facility, but they also have a variety of utility services from mobile recharge to Direct Mutual Fund investment from the single App. Mobi Kwik is also one of the most popular payment gateway service providers in India and companies like Uber, Zomato, Dominos, IRCTC, etc uses their payment gateway.

Mobi Kwik is one of the most downloaded and highly rated UPI apps both in Android and iOS App Store.

Features:

- Smooth and clean App interface.
- Collect Payback points from every mobile recharges or utility bill payments which can be redeemed for future payments.
- In-App Digital loan up to Rs.1.00 lacs without any paper documentation.
- An in-app purchase of a variety of insurance products like health insurance, Home Insurance, Personal Accidental Insurance, etc.
- Invest in Direct Mutual Fund Schemes.
- Excellent discount and Cashback offers with a number of online merchant partners.

8. **BHIM:**

BHIM (Bharat Interface for Money) is a mobile payment App developed by the National Payments Corporation of India (NPCI), based on the Unified Payments Interface (UPI). Named after B. R. Ambedkar and launched on 30 December 2016, it is intended to facilitate e- payments directly through banks as part of the 2016 Indian banknote demonetisation and drive towards cashless transactions.

The app supports all Indian banks which use UPI, which is built over the Immediate Payment Service (IMPS) infrastructure and allows the user to instantly transfer money between bank accounts of any two parties. It can be used on all mobile devices.

Features:

- BHIM allow users to send or receive money to or from UPI payment addresses, or to non-UPI based accounts (by scanning a QR code with account number and IFSC code or MMID).
- Unlike mobile wallets (PayTM, MobiKwik, mPesa, Airtel Money, etc.) which hold money, the BHIM app is merely transfers money between different bank accounts.

Transactions on BHIM are nearly instantaneous and can be done 24/7 including weekends and bank holidays.

- BHIM also allows users to check the current balance in their bank accounts and to choose which account to use for conducting transactions, although only one can be active at any time.
- Users can create their own QR code for a fixed amount of money, which is helpful in merchant-seller-buyer transactions. Users can also have more than one payment address.
- If the 12-digit Aadhaar number is listed as a payment ID, the BHIM app will not require any biometric authentication or prior registration with the bank or UPI.

UPI App-Wise Market Share of UPI transaction as of August 2019 in terms of the transaction volume:

Paytm was one the first apps to enter the market and make a name for itself, but recent trend shows that through extensive marketing Google Pay and Phone Pe have both surpassed Paytm and other UPI apps in terms of volume of transactions.

With the Unified Payments Interface (UPI), third-party apps were allowed to collect the debit instructions and submit them to the account holder's bank, using the secure backend systems managed by the National Payments Corporation of India (NPCI). This deliberate decoupling has led to competition and innovation with specialized apps like Phone Pe, Paytm, Google Pay, Amazon Pay and others competing to be the customer's favourite payments app. All of them work on the payment rails of the UPI.

UPI has also made payments simpler by removing the need to enter lengthy bank account numbers and IFS codes. To make a UPI payment, the user has to know only the recipient's virtual payment address (VPA), which is a simple combination of username and bank name that looks similar to abc@xyzbank. It is a modern, mobile-first system that does away with the need for physical cards. In a country like India, with its low literacy levels, this kind of simplicity is essential for financial inclusion.

Globally, payment systems have been privately owned duopolies because of the very nature of the business. Due to network effects, merchants and customers gravitate to the largest payment platforms, resulting in a few large players dominating the market. UPI was set up as a comparatively open, interoperable payment platform. Any bank can plug into the NPCI's backend system and offer UPI as a service to their own customers, or to third party payment apps like Google Pay and Phone Pe. For customers, this means that they have a choice of more than a hundred UPI apps to choose from.

UPI is also a policy innovation because it was designed to be interoperable from Day One. In many countries, payment networks have grown rapidly and regulators have tried to enable interoperability in hindsight. For example, it is only after the rapid growth of Alipay and WeChat that China has made them connect to Wang'lian, a public clearing and settlement institution for online payments. The interoperability of the UPI platform means that, once a user has downloaded and signed up on UPI, s/he can instantaneously send money to anyone else on the UPI system. It must be noted that very few countries, including the US, have a national payment network that enables instant settlement.

Three years ago, even the banks that are shareholders in the NPCI did not give it much odds of success. The rapid growth of UPI has silenced naysayers and proven that India can build a world-class payments infrastructure from scratch.

NEED FOR THE STUDY

The primary need of this project is to find out the impact of growing UPI payments on small businesses in the city of BANGALORE. There is an indispensable need to study and analyse the volume and value of payments made using the UPI apps which proves to be a giant leap in making payments cashless. This study also focuses on the utilisation of such facilities by businesses and the benefits and discrepancies in the UPI apps. This study would enable the businesses and persons accessing this report to understand the significance of the impact of UPI payments on the turnover of businesses. This study also points out the challenges faced by the businesses and consumers while making UPI payments.

OBJECTIVES OF THE STUDY

- ❖ To identify the challenges faced by businesses while making use of UPI.
- ❖ To enquire about the increase in customers with introduction of UPI.

- ❖ To understand the ease and reliability of UPI apps.
- ❖ To study the volume of UPI transactions on a daily basis.
- ❖ To study the value of transactions on a monthly basis.

SCOPE OF THE STUDY

The study is basically conducted in the city of BANGALORE. Kodialbail, Hampankatta, Kankanady areas have been selected for survey and research. BANGALORE being one of the fastest growing non metro cities has openly welcomed one of the best alternatives for cash that is, UPI. The future is cashless and UPI is the way to go. The study has been carried on the businessmen making use of UPI payments. The small businesses include supermarkets, grocery shops, bakeries etc.

MATERIALS AND METHODOLOGY OF THE STUDY

UPI is a fairly new and rapidly growing mode of payment that is seen in the city of BANGALORE. The following are the sources from which the information has been collected.

PRIMARY DATA

Primary data is also called as raw data. The primary data was collected through

personal interview with the owners of the business through with the help of questionnaire.

In this a purposive sampling was done with the sample size of 25 respondents within the boundaries of BANGALORE city.

SECONDARY DATA

Secondary data is the data which is second hand in nature and not collected by the investigation directly from the field. They are the data which are borrowed from the others who have collected them for other purpose. The secondary data for the purpose of study was collected from the internet, websites, textbooks, journals.

SOCIAL RELEVANCE AND CONTRIBUTION

In today's world people are looking for ways by which we can make our work easier day by day. One of the best ways of making our work easier in the world of payment is by the use of UPI apps which benefits both the businessmen and the consumers. It saves the time of business men who can directly place orders when they have received money through UPI payments directly to their bank accounts. This study also aims at providing businessmen with the solutions to UPI linked problems and letting them know about the benefits of UPI.

LIMITATIONS OF THE STUDY

Every research project is carried out to achieve the objectives in full earnest and accuracy, But the project suffers from the following limitations.

- ❖ The time period for the study is insufficient for overall research.
- ❖ The respondents may not give 100% true information due to ignorance or information being personal.
- ❖ This study is restricted to only 25 members
- ❖ Lack of knowledge
- ❖ Difficulty in locating businesses making use of UPI payments

CHAPTER – 2 LITERATURE REVIEW

Pavan Duggal (2013): The book focuses on the various legal and regulatory aspects of Mobile Payment. The book further analyses the world wide legal position concerning Mobile Payment. Today, mobile phone has not just only increased productivity, it has also become a significant device in our lives. It is only natural to expect that the said device should be used for dealing with one activity in which entire human economy is based i.e. activity of dealing with money. Consequently, mobile payments are increasingly becoming an important aspect of our day-to-day existence. More and more people want to use their mobile phones for making payments on a variety of purchases that they purchase using mobile phones and on mobile e- commerce platforms. Various models of mobile payments are currently being tried. There is no one complete success story but clearly mobile payment is the way of the future. The author speaks about the various legal, policy and regulatory issues regarding mobile payments. These are issues which have a profound impact not just upon the way how we will be able to use mobile phones for payment purposes, but also the way how the mobile payment economy is likely to grow over a period of time. At a time when cyber criminals and mobile criminals are waiting for every opportunity to rob you of your moneys, mobile payment has before it various legal, policy and regulatory challenges. This book “Mobile Payments & Mobile Law” seeks to specifically look at the legal, policy and regulatory issues impacting mobile payments. It also looks at the various developments in this area in different jurisdictions and also examines the legal challenges that exist before the growth of mobile payments.

Regien Wiggers (2017): The author speaks about internet changing the world rapidly, how it impacts the way we think, the way we organise our society and our daily life. This book series Understanding Internet provide insight in the working of the web and the influence on society. It helps to better direct our future. In this book we can see how the world is transferring from a financial system through papers, to a digital and online system. All banks adjusted their banking services, and some new international monetary systems were introduced, such as PayPal and bitcoin.

Gerardus Blokdyk (2018): This book is actually a self-assessment to improve the understanding of the requirements and elements of NFC Payments, based on best practices and standards in business process architecture, design and quality management. It is designed to allow for a self-assessment to determine how closely existing management practices and procedures correspond to the elements of the self-assessment. Even a person having limited knowledge of NFC Payment can quickly review existing operations to determine how they measure up to the standards. This book enables businesses to address common challenges with best-practice templates, step by step work plans and maturity diagnostics for any NFC Payment related projects.

Marc PASQUET, Joan REYNAUD, Christophe ROSENBERGER (2008): This paper deals with (Information Technology for European Advancement) SmartTouch project whose one of the objectives is to use NFC mobile phones for a secure payment. An experience in real conditions has been carried out at Strasbourg in France, in 2007. This trial is the first experiment of a NFC-based payment application that fully supports the international EMV standard and the PayPass program. The main focus in this paper is on the security analysis which can occur in a NFC mobile phone payment. The security concepts as a major issue in this scenario is presented in the paper. The main requirement is to have the same level of security as standard EMV payment transactions. The methodology of the payment application and its communication with the payment terminal through a NFC link is described. The last part of this article presents different research perspectives to overstep the encountered problems.

Skip Allums (2014): According to this, consumer purchases with mobile phones are on the rise. The book shows practical experiences on how to make a payment app more secure, compelling and reliable. This book shows product managers from startups to financial institutions on how to design mobile payments that not only safeguards identity and financial data, but also provide value added services that exceed customer expectations. This book helps us to learn about major mobile payment frameworks: NFC, cloud, and closed loop. It also examines the pros and cons of Google wallet, PayPal and other payment apps and the various additional services like points, coupons, offers etc.

Kyle J.J.Kemper (2018): The author speaks about the advancement in wallet payments, a world where your assets are protected by futuristic brainwave monitors. A world where you're in control of your medical records, legal contracts, and payment experiences. This is the world that Kyle Kemper envisions in The Unified Wallet - Unlocking the Digital Golden Age. In this book, he explains how cryptocurrency and blockchain will revolutionize everything from commerce to

medicine to law. But the full potential of this digital future will not be realized until new systems have been created that will allow for streamlined, secure interoperability between key elements. An open, unified digital wallet will be at the forefront of the digital revolution. He speaks about how these exciting new technologies will come together under a universal platform, one that will utterly transform the way that commerce is done in the global economy.

Mike Wellington (2016): This article shows you exactly how you can tap into the power of virtual credit cards to protect yourself from credit card fraud. It will give you a deep insight on the meaning of virtual credit cards, their benefits, uses, where to get them and so much more that you need to know about them. The author also speaks about the use of e- wallets for payments and the benefits like safety and time saving. He has created a list of the best rated virtual credited card providers; and not only that, they also give them out for free. Virtual credit cards simply refer to online cards that are not issued physically by the credit card provider. Instead, it is usually a free service offered by credit card issuers (physical credit card issuers) to support users who want to make online payments using credit cards easy and worry free.

David W. Schropfer (2010): In this book the author focuses his attention on the consumer point of view towards the smartphone wallet. He speaks about the revolution being brought in by wallet payment and shows consumers ways to adapt to these fast approaching changes in the field of payments. The reality is that a torrent of advertising and promotional marketing is heading your way to try to convince you to use new services on your Smartphone at retail stores. Perhaps you have already seen some, or signed up for some. These new services may seem novel, but this revolution is far more significant than that. He talks about the credit card system that is at stake, which moves over \$11 Trillion per year from consumers to retailers. Some of the largest companies in the world think this system should change, starting now. Other, equally large companies think everything should stay the same. These two sides are already lining up on a battlefield, with consumers standing in the middle. And, if you are not careful, the first casualty will be your privacy.

TREND FINDER (2019): This eBook covers all those popular Indian Mobile Payment and cashcard companies and examines the current market demand of each of the Mobile Payment apps. Through the use of graphs and charts the author has clearly shown the direction in which the market is going for a respective topic. He has mentioned the advantages and disadvantages of the various e-wallet apps available in India. This books lets you to know about the popular Mobile Payments apps, their demand in the market and puts you in a position to decide which Indian mobile payments app you can switch your attention to.

Rohan Handa, Kritika Maheshwari, Malvika Saraf (2011): This book shows insights about the Google wallet which is a mobile payment Android app that transforms a phone into a wallet. This app utilizes the Near Field Communication (NFC) technology that allows its users to pay for purchased items and redeem offers. At this initial stage of business, there are many features and factors that Google needs to change in order to bring about the mass adoption of this service. The authors aim at addressing the hurdles for this technology and the methods to bring it to success. They have evaluated Google's profit motivation and the bigger strategy behind this service. They have also explained the business approach which describes the importance of the adopted business model. They have made use of SWOT analysis to give recommendations that will help in the mass adoption. Finally, they have focused on formulating a strategy canvas in order to study the existing payment methods in comparison to their service. The paper concludes with recommendations to Google for promoting wide customer acceptance.

Scott La Counte (2019): The author through this book focuses on Apple card and Apple Pay app which has stepped up in recent years to compete with the likes of Google Wallet and the old fashioned credit cards. While most credit card companies have stuck to doing things like they always have, Apple has decided to innovate like they've always done. In 2019, they launched the Apple Card—a card many security experts call the most secure card ever made. You can change your credit card number in seconds, and the card itself doesn't even have numbers on it. Just your name and a strip. This book is useful to people making use of Apple cards and potential users of apple card as well. This short book also covers Apple Pay topics which is beneficial to new users of Apple Card.

Dr. Prem Kumar Srivastava (2008): According to the author information technology has revolutionised various aspects of our life. The author examines the shift from conventional banking to e-banking and also the stepping up of the e-commerce platforms with the support of e-banking. He stresses on the ease of banking by electronic means and the shift from brick and mortar to click and portal model. He refers to e-banking as a science than an art as it is knowledge based

and mostly scientific in using the electronic devices. The author also focuses on the benefits, types and constraints involved in e-banking. He has also given out advice on how to improve the safety and reliability of internet banking through the use of complex PIN and never sharing your PIN with anyone.

S. Natarajan, Dr. R. Parameswaran (2015): The authors have given an in depth explanation about the dramatic changes taking place in the world of banks and banking operation. The global financial integration has brought about a bigger challenge to Indian banking. The complexities of banking operations in the recent years have undergone significant changes due to innovations in the banking products and cross border dealings. This book helps us to understand the evolutionary changes in Indian banking, its structure and purpose and ongoing developments etc. They have also focussed on the trends in e-banking and phone banking and the various benefits arising from it.

D. Muraleedharan (2014): Technological innovations and advancements have spread into every sphere of life and banking is no exception. With competition being tough and fierce, business, especially banking, has to adopt new methods and techniques. Modern banking essentially implies use of modern technology and communication tools, for example, computer and the Internet, for bringing about more efficiency and speed in banking operations and making them more and more customer friendly and customer focused. This well-written text by D. Muraleedharan examines the latest developments in the Indian Financial System and the significant roles the Indian Banking Sector has played in the development of the economy. Thoroughly practical and comprehensive, the book discusses the modern trends in Indian banking, especially its prospects with the use of technology, and other core areas of banking. It covers a wide range of topics such as financial markets and institutions, credit rating, modern e- payment systems, core banking, and hi-tech banking.

B. Nicoletti (2014): In these difficult times, financial institutions need to improve their position in the market and become better at coping with changing socio-economic factors. This means increasing revenue and reducing costs. There is only one way of achieving this and that is by becoming more agile. One of the best ways of doing this is by using more digitization. Financial services have traditionally been cautious regarding new innovation, but the world is changing and banks are becoming increasingly aware of the need to innovate in products, processes, organization, and business models. Mobile is the ideal enabler of such innovations and is impacting heavily on our society, from a personal, social, and business point of view. Recently we have witnessed a growing interest in the topic of mobile, not only in the consumer world but also within business organizations. This book analyses the application of mobile technology to the world of financial institutions. It describes new products, processes, organizations and business models connected with the mobile. Most importantly it considers future developments and the possible use of mobile technology to help transform these products, processes, organizations and business models of financial institutions globally.

CHAPTER – 3 AREAPROFILE

BANGALORE

BANGALORE is officially known as BANGALORE. It is the chief port city of the Indian state of Karnataka. BANGALORE's diverse communities have different names for the city in their languages. It is known as BANGALORE in Kannada, Kudla in Tulu, Kodial in Konkani and Maikala in Beary. It is located about 352 km (220 m) west of the state capital, Bangalore between the Arabian Sea and the Western Ghats mountain ranges. It is the administrative headquarters of Karnataka.

BANGALORE developed as a port on the ArabianSea remaining, to this day, a major port of India.Lying on the backwaters of the Netravati and Gurupura rivers, BANGALORE is often used as a stagingpoint for sea traffic along the Malabar Coast. The city has a tropical climate and lies inthe path of the Arabian Sea branch of the South-West monsoons. BANGALORE's port handles 75 per cent of India's coffee and cashew exports. BANGALORE was ruled by several major powers, including the Kadambas, Alupas, Vijayanagar Empire, KeladiNayaks and the Portuguese. The city was a source of contention between the British and the Mysore rulers, Hyder Ali and Tipu Sultan. Eventually annexed by the British in 1799, B0ANGALORE remained part of the MadrasPresidency until India's Independence in 1947. The city was unified with the state of Mysore (now called Karnataka) in 1956.

BANGALORE is the largest city in DakshinaKannada district and is one of the most cosmopolitan non-metro Cities of India. It is also the largest city in the Coastal and Malnadregions of Karnataka, besides being a leading commercial, industrial, educational and healthcare hub on the West Coast. BANGALORE city urban agglomeration extends from Ullal

in the south to Mulki in the north, covering a distance of over 40 km. The city's landscape is characterized by rolling hills, coconut palms, freshwater streams and hard red-clay tiled- roof buildings.

BANGALORE ranks amongst the cleanest cities in India. The city was ranked India's 13th and Karnataka's second most favorable destination for business. BANGALORE will be developed as a smart city under PM Narendra Modi's flagship Smart Cities Mission.

ETYMOLOGY

BANGALORE was named after the deity Mangaladevi, the presiding deity of the Mangaladevi temple or a synonym of Tara Bhagvati of the Vajrayana Buddhist sect. According to local legend, a princess from Malabar named Parimala (also known as Pramila or Premaladevi) renounced her kingdom and became a disciple of Matsyendranath, the founder of the Nath tradition. Having converted Premaladevi to the Nath sect, Matsyendranath renamed her Mangaladevi. She arrived in the area with Matsyendranath, but had to settle near Bolar in BANGALORE as she fell ill on the way. Eventually she died, and the Mangaladevi temple was consecrated in her honour at Bolar by the local people after her death. The city got its name from the temple.

One of the earliest references to the city's name was made in 715 CE by the Pandyan King Chettian, who called the city Mangalapuram. The city and the coastal region was a part of the Pandyan Kingdom. According to K.V. Ramesh, President of the Place Names Society of India, BANGALORE was first heard in 1345 CE during the Vijayanagar rule. Many shilashasanas (stones) of Vijayanagar period refer the city as Mangalapura. Even before that, during the Alupa dynasty period, it was referred to as Mangalapura (Mangala means 'auspicious'). The city is well known as BANGALORE in Kannada, a reference to Mangaladevi (the suffix uru means town or city). During the British rule from 1799, BANGALORE (anglicised from BANGALORE), stuck as the official appellation. However, according to historian George M. Moraes, the word BANGALORE is the Portuguese corruption of BANGALORE. The name of this town also appears in maps as early as the 1652 Sanson Map of India.

BANGALORE's diverse communities have different names for the city in their languages. In Tulu, the primary spoken language, the city is called Kudla, meaning junction, since the city is situated at the confluence of the Netravati and Gurupura rivers. In Konkani, BANGALORE is referred to as Kodiyal, while in Malayalam, BANGALORE is called Mangalapuram and the Beary name for the city is Maikala.

CIVIC ADMINISTRATION

The BANGALORE City Corporation (MCC) is the municipal corporation in charge of the civic and infrastructural assets of the city, and it came into existence in the year 1980. BANGALORE has a city area of 184 km² (71.04 sq mi). Municipal limits begin with Surathkal in the north, to Netravati river bridge in the south and western sea shore to Vamanjoor in the east. The MCC council comprises 60 elected representatives, called corporators, one from each of the 60 wards (localities) of the city. A corporator from the majority party is selected as a Mayor. The headquarters of BANGALORE City Corporation is at Lalbagh.

Until the revision of Lok Sabha and the legislative constituencies by the Delimitation commission, BANGALORE contributed two members to the Lok Sabha, one for the southern part of the city which fell under the BANGALORE Lok Sabha constituency, and another for the northern part of the city which fell under the Udipi Lok Sabha constituency. After the delimitation of parliamentary constituencies in 2008, BANGALORE Lok Sabha constituency is replaced by Dakshina Kannada Lok Sabha constituency, resulting in BANGALORE contributing only one Member of Parliament (MP). Additionally, BANGALORE sends three members to the Karnataka Legislative Assembly from BANGALORE City South, BANGALORE City North and BANGALORE. The BANGALORE City Police Department is headed by a Commissioner of Police. BANGALORE is also the headquarters of the Western Range Police, covering the western districts of Karnataka, which is headed by an Inspector General of Police (IGP).

UTILITY SERVICES

Electricity in BANGALORE is regulated by the Karnataka Power Transmission Corporation Limited (KPTCL) and distributed through BANGALORE Electricity Supply Company (MESCOM). Major industries such as BANGALORE Refinery and Petrochemicals (MRPL) and BANGALORE Chemicals & Fertilizers (MCF) operate their own captive power plants.

Potable water to the city is supplied from the vented dam, constructed across the Netravati River at Thumbe, 14 kilometres (9 mi) from BANGALORE. The Karnataka Urban Development and Coastal Environment Management Project (KUDCEMP) aims to improve safe water supply systems and reduce leakage and losses in the distribution system in BANGALORE. The distribution and rehabilitation of the drinking water in BANGALORE city will be handled by the French company Suez. The official garbage dumping ground of BANGALORE is in Vamanjoor. The city generates an average of 175 tons per day of waste, which is handled by the health department of the BANGALORE City Corporation.

Fixed Line telecom services are offered alongside GSM and Code division multiple access (CDMA) mobile services. BANGALORE is the headquarters of the Dakshina Kannada Telecom District, the second largest telecom district in Karnataka. Prominent broadband internet service providers in the city include Tata indicom, Airtel and DataOne by BSNL. Bharti Airtel, Vodafone India, Reliance Jio and Idea Cellular have launched 4G LTE service in the city.

TOURISM

The city is called the Gateway of Karnataka and lies between the Arabian Sea and the Western Ghats. The various temples and buildings in BANGALORE include the Mangaladevi Temple, Kadri Manjunatha temple, St Aloysius Chapel, the Rosario Cathedral, Milagres Church, Dargah of Hazrat Shareef ul Madni at Ullal and the Zeenath Baksh Jumma Masjid in Bunder.

The city is also known for beaches such as Panambur, Tannirbhavi, NITK beach, Sasihithlu beach, Someshwara beach, Ullal beach, Kotekar beach and Batapady beach. Panambur and Thannirbhavi beaches attract tourists from across the country. Panambur beach has many facilities including food stalls, jet ski rides, boating and dolphin viewing, besides trained beach lifeguards and patrol vehicles to ensure the safety of the visitors. Saavira Kambada Basadi is situated 34 km (21 mi) northeast of BANGALORE in the town of Moodabidri. The Sultan Battery watch tower, built by Tipu Sultan, situated in Bolor, is on the banks of Gurupura River whereone can take the ferry ride by paying small amount across the river and reach Tannirbhavi Beach. Adyar waterfalls is at the outskirts at about 12 km (7.5 mi) from the city.

ECONOMY OF BANGALORE

BANGALORE's economy comprises industrial, commercial, agricultural processing and port- related activities. The New BANGALORE Port is India's eighth largest port, in terms of cargo handling. It handles 75 per cent of India's coffee exports and the bulk of its cashew nuts. During 2000–01, BANGALORE generated a revenue of ₹33.47 crore (US\$4.84 million) to the state. Imports through BANGALORE harbour include crude oil, edible oil, LPG and timber. The city along with Tuticorin is also one of two points for import of wood to South India.

The city's major petrochemical industries include BASF, BANGALORE Refinery and Petrochemicals Ltd. (MRPL), BANGALORE Chemicals and Fertilizers Ltd. (MCF), Kudremukh Iron Ore Company Ltd. (KIOCL), Hindustan Petroleum Corporation Ltd. (HPCL), Bharat Petroleum Corporation Ltd. (BPCL), JBF Petrochemicals and Total Oil India Limited. The Oil and Natural Gas Corporation (ONGC) plans to invest over ₹35,000 crores (US\$5.06 billion) in a new 15 million-tonne refinery, petrochemical plant and power, as well as LNG plants at the BANGALORE Special Economic Zone. Indian Strategic Petroleum Reserves Ltd, a special purpose vehicle under the Oil Industry Development Board, has developed strategic crude oil reserves in BANGALORE and two other places in India.

Padur in Karnataka and at Visakhapatnam to ensure energy security. Bharati Shipyard Ltd (BSL) (now known as Bharati Defence and Infrastructure Limited) has established its ship building site near Tannirbhavi in BANGALORE.

Major information technology (IT) and outsourcing companies like Infosys, Cognizant Technology Solutions and Endurance International Group have their branches at BANGALORE. [Mphasis BPO has one of its branches at

BANGALORE. Two IT parks, namely, (Export Promotion Industrial park (EPIP) at Ganjimutt and Special Economic Zone (SEZ) near BANGALORE University) have been constructed. There is an IT Tech Park by the name Soorya Infratech parksituated in Mudipu. Corporation Bank, Canara Bank and Vijaya Bank were the three nationalised banks established in BANGALORE during the first half of the 20th century. BANGALORE is the headquarters of Corporation Bank and Karnataka Bank. The BANGALORE Catholic Co- operative Bank (MCC Bank) Ltd, BANGALORE Cooperative Town Bank Ltd and SCDC Bank were the scheduled banks established in BANGALORE.

The leaf spring industry has its presence in BANGALORE, with Canara Workshops Ltd. and Lamina Suspension Products Ltd. in the city. The Old BANGALORE Port is a fishing port locatedat Bunder in BANGALORE, where a large number of mechanised boats anchor. The traffic at this port was 122,000 tonnes during the years 2003–04. Fishing is a traditional occupation, and theproducts are exported to the surrounding regions. BANGALOREan firms have a major presence in the tile, beedi, coffee and cashew nut industry, although the tile industry has declined due to concrete being preferred in modern construction. The Albuquerque tile factory in BANGALORE is one of India's oldest red roof tile manufacturing factories. The Ullal suburb of BANGALORE produces hosiery and coir yarns, while beedi rolling is an important source of revenue to manyin the city.

HISTORY OF BANKING

The state of Karnataka, particularly the coastal districts of Dakshina Kannada and Udupi, historically and collectively known as South Canara, is called the cradle of banking in India. This is because seven of the country's leading banks, Canara Bank, Syndicate Bank, Corporation Bank, Vijaya Bank, Karnataka Bank, Vysya Bank and the State Bank of Mysore originated from this state. The first five in the above list of banks were established in the districts of Udupi and Dakshina Kannada. These districts have one among the best distribution of banks in India - a branch for every 500 persons. Between 1880 and 1935, 22 banks were established in coastal Karnataka, nine of them in the city of BANGALORE.

UPI PAYMENTS IN BANGALORE

UPI is a relatively new mode of payment launched in India in 2016 and has already become the favourite among people when it comes to digital payments. In October, the real-time payment service was responsible for over 50.49% of all digital transactions, according to data from Razorpay, a Bengaluru-based payment gateway. The city of BANGALORE has also started using this fast and reliable payment method and already has 300 + registered merchants making use of the app. Karnataka has been at the forefront of leading UPI's popularity. In October, the southern state accounted for 27.72% of total transactions in the country, according to Razorpaydata (majority of it coming from Bengaluru and BANGALORE cities).

BANGALORE is one of the fastest growing non metro cities and it is important to step up and move towards a cashless economy. UPI is set to become a trillion-dollar industry and contribution from these cities are vital for its growth. The merchants of BANGALORE have optedfor this change as it is fast, reliable and secure and most importantly the most suitable alternative for cash. People no longer have to hold cash in their pockets as your smartphone can do the job for you. Another reason why merchants have opted for this is because one QR code is readable for payment by any of the UPI app the customer has. The main users of this app are students from colleges but the adults have also started using the app in recent times. UPI is one for the future and we can say that majority of people from BANGALORE have said yesto the future.

CHAPTER – 4 DATA ANALYSIS AND INTERPRETATION

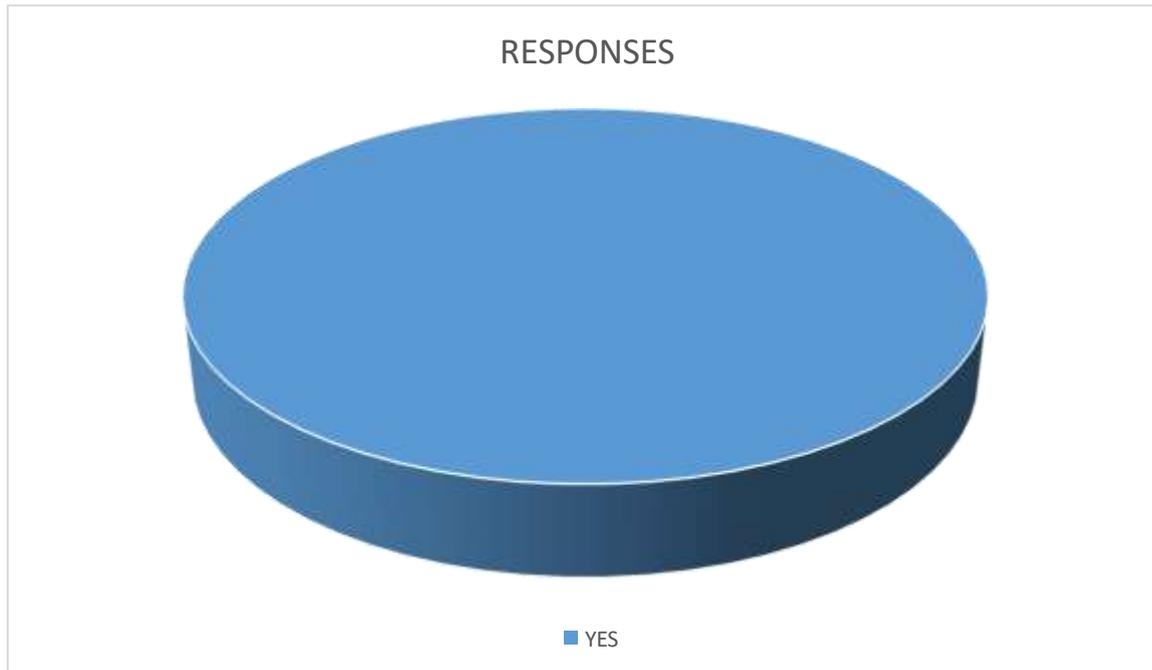
Table No 4.1 showing the number of businesses making use of UPI app.

Responses	No of respondents	Percentage
YES	25	100

NO	0	0
TOTAL	25	100

[Source: Primary Data]

Chart No 4.1 showing the number of businesses making use of UPI app.



[Source: Primary Data]

INTERPRETATION:

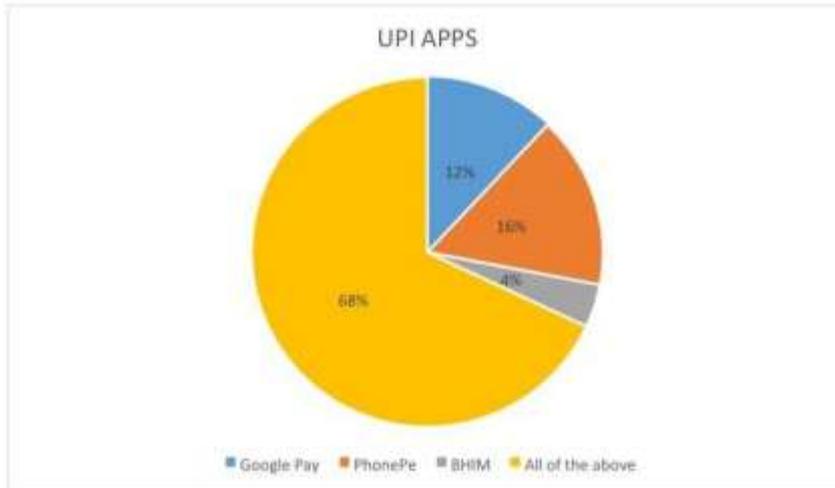
The following survey has been conducted on businesses making use of UPI apps to analyse its impact on the business. So from the above chart we can see that all the businesses were making use of the UPI apps for receiving payments.

Table No 4.2 showing the apps made use by the businesses.

Name of Apps	No of respondents	Percentage
Google Pay	3	12
PhonePe	4	16
BHIM	1	4
All of the above	17	68
TOTAL	25	100

[Source: Primary Data]

Chart No 4.2 showing the apps made use by the businesses.



[Source: Primary Data]

INTERPRETATION:

From the above chart it’s clear that most of the merchants are making use of apps that accept payment from all of the other mentioned apps. 68% merchants accept payments from all the apps. Whereas just 1%of the total make use of the conventional BHIM app for receiving payments. Googlepay and PhonePe are made use by 12% and 16% respectively.

Table No 4.3 showing the duration for which businesses have been making use of the apps.

Duration	No of respondents	Percentage
1-2 months	7	28
6 months	3	12
1 year	3	12
More than a year	12	48
TOTAL	25	100

[Source: Primary Data]

Chart No 4.3 showing the duration for which businesses have been making use of the apps.



[Source: Primary Data]

INTERPRETATION:

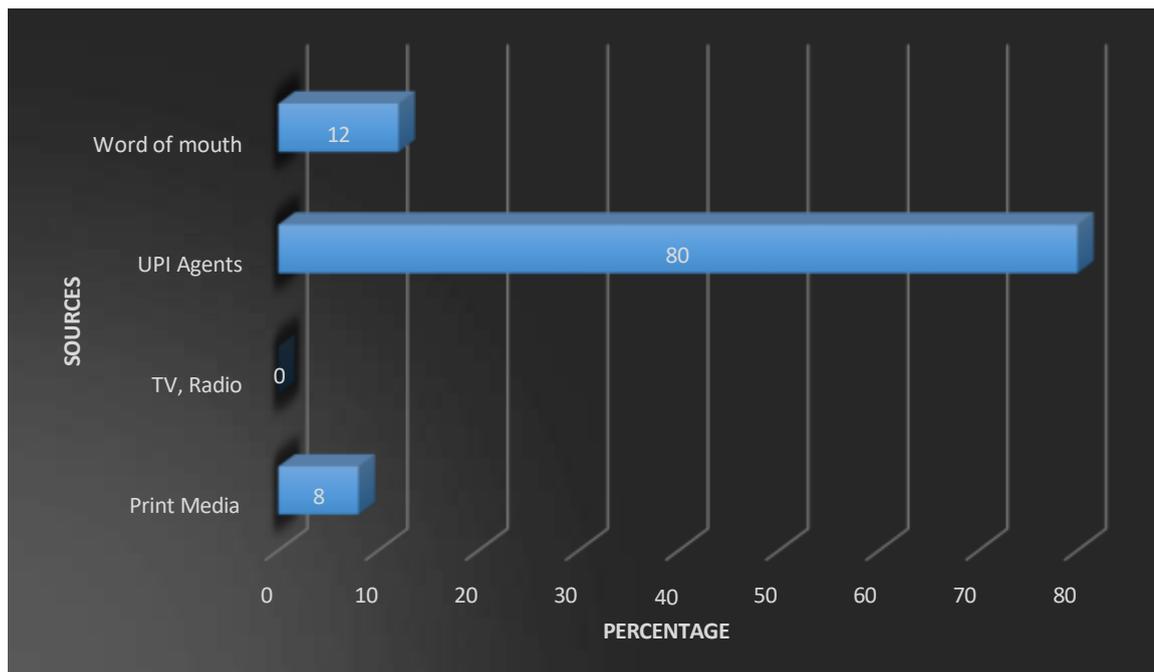
UPI apps have been in use for just over 3 years now and its clearly visible that merchants have quickly adopted for this alternative.48% of the total surveyed have been using the app for more than a year and gradually new merchants have also started using the app .28% have just started using the app while 12% have started using the app from 6 months to 1 year.

Table No 4.4 showing the source from which they got to know about UPI.

Source	No of respondents	Percentage
Print media	8	8
TV, Radio	0	0
UPI Agents	20	80
Word of mouth	3	12
TOTAL	25	100

[Source: Primary Data]

Chart No 4.4 showing the source from which they got to know about UPI.



[Source: Primary Data]

INTERPRETATION:

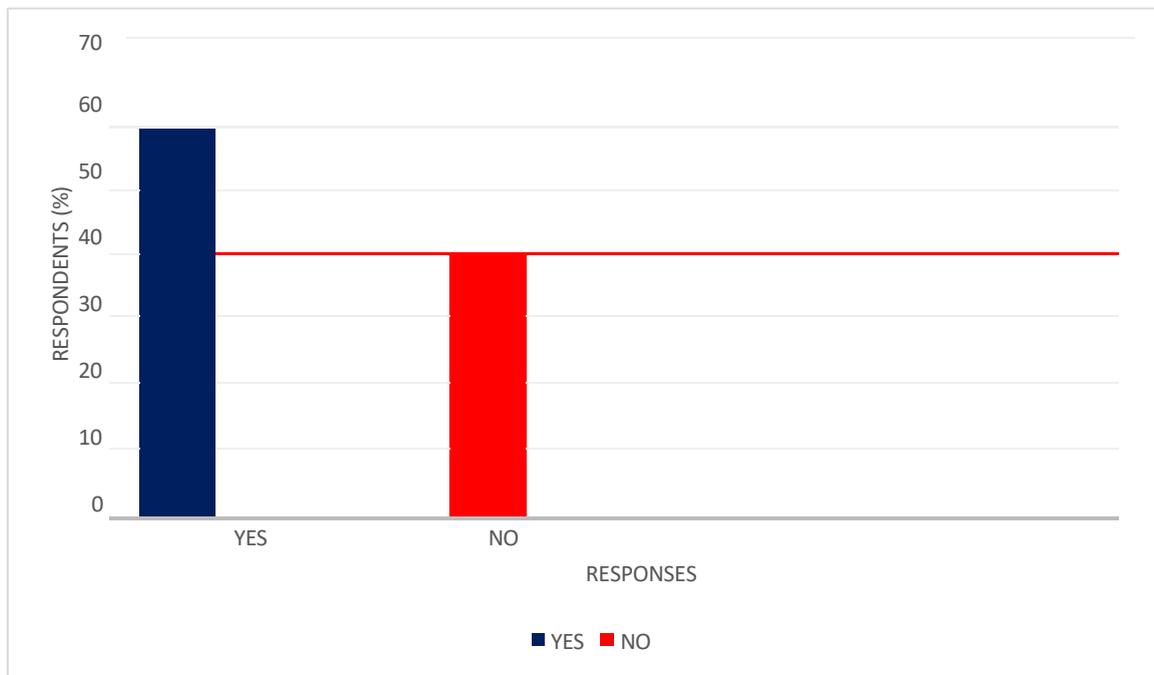
Majority of the Merchants came to know about UPI apps through the agents appointed by a particular app. In most of the cases it was Phone Pe agents who were responsible for setting up UPI QR codes in shops. 80% of the total surveyed came to know about the app through agents whereas 12% and 8% came to know about the app through word of mouth and print media respectively.

Table No 4.5 showing whether UPI apps have increased their turnover or not.

Responses	No of Respondents	Percentage
YES	15	60
NO	10	40
TOTAL	25	100

[Source: Primary Data]

Chart No 4.5 showing whether UPI apps have increased their turnover or not.



[Source: Primary Data]

INTERPRETATION:

For 60% of the total surveyed the turnover has increased in volume by considerable amount after the setting up of UPI apps but 40% still believe that there hasn't been any change in the level of turnover generated by them. There is huge potential for UPI in BANGALORE and it can clearly increase turnover of merchants once properly implemented.

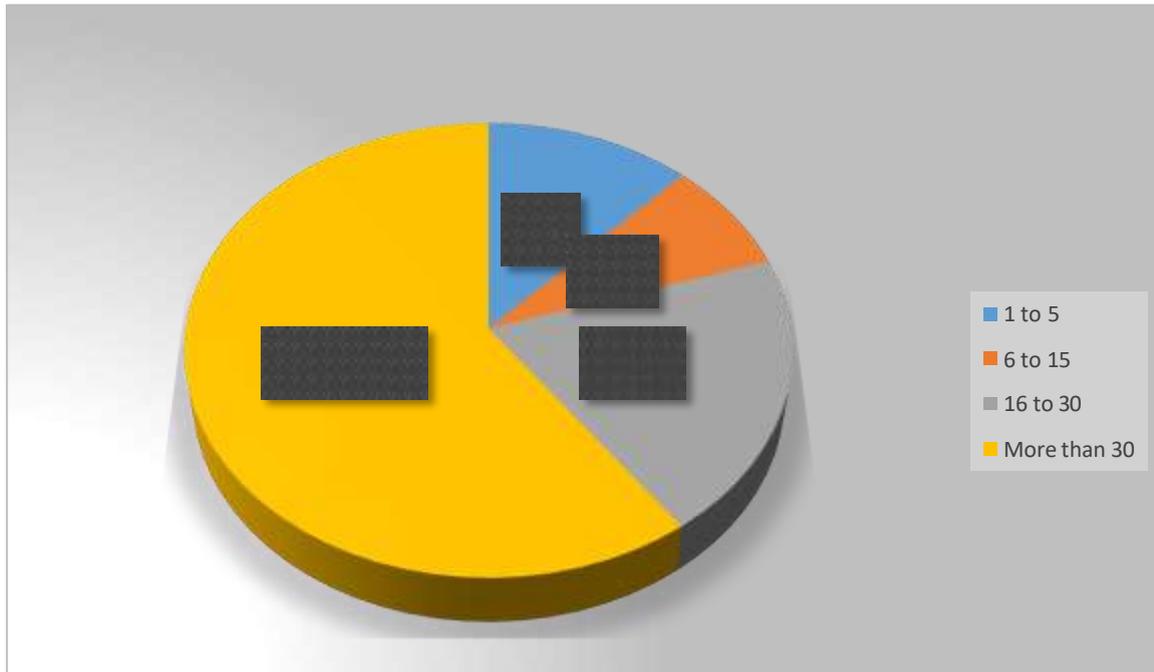
OBJECTIVE- To study the volume of UPI transactions on a daily basis.

Table No 4.6 showing number of transactions in a day.

No of transactions	No of Respondents	Percentage
1-5	3	12
6-15	2	8
16-30	5	20
More than 30	15	60
TOTAL	25	100

[Source: Primary Data]

Chart No 4.6 showing number of transactions in a day.



[Source: Primary Data]

INTERPRETATION:

From the following graph we can interpret that AROUND 60% of the merchants surveyed receive more than 30 transactions in a day compared to 12% merchants receiving 1-5 transactions in a day. Around 8% receive 6-15 transactions and 20% receives 16-30 transactions in a day.

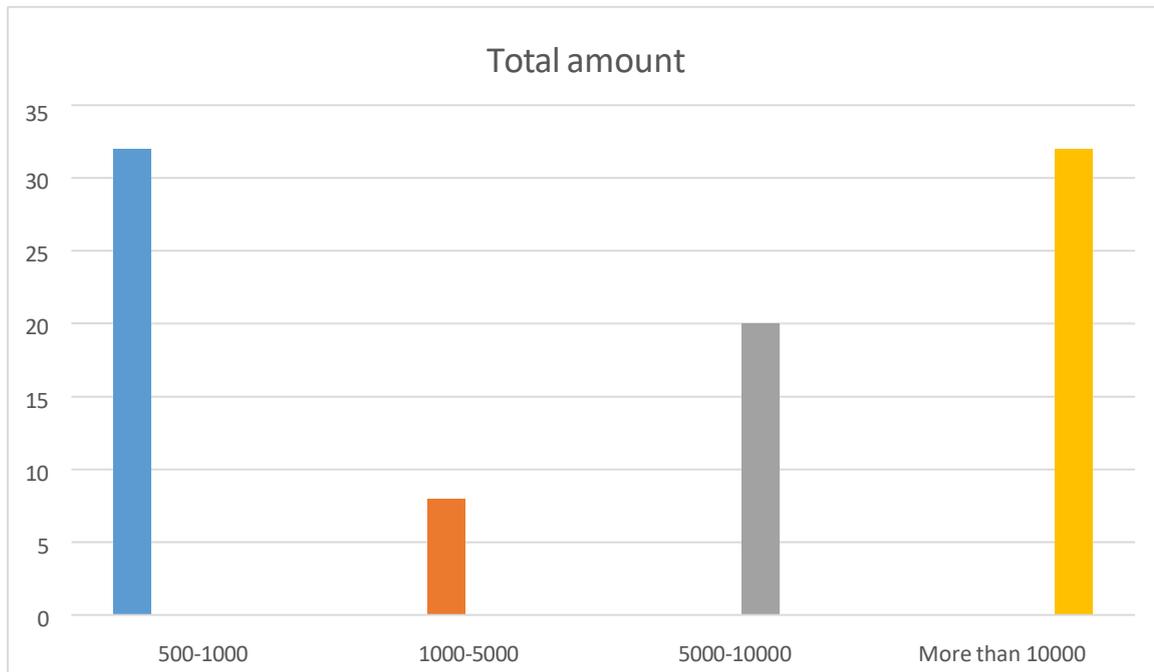
OBJECTIVE-To study the value of UPI transactions in a month.

Table No 4.7 showing total amount received through UPI in a month.

Total amount received	No of Respondents	Percentage
500-1000	8	32
1000-5000	2	8
6000-10000	7	28
More than 10000	8	32
TOTAL	25	100

[Source: Primary Data]

Chart No 4.7 showing total amount received through UPI in a month.



[Source: Primary Data]

INTERPRETATION:

We can interpret that the amount received through UPI app differs in different businesses due to the heterogeneity of the size, nature, environment of business, location of business etc. Around 32% of the merchants receive only Rs 500-1000 in a month but on the other hand 32% of the surveyed businesses also receive more than Rs 10000 in a month.

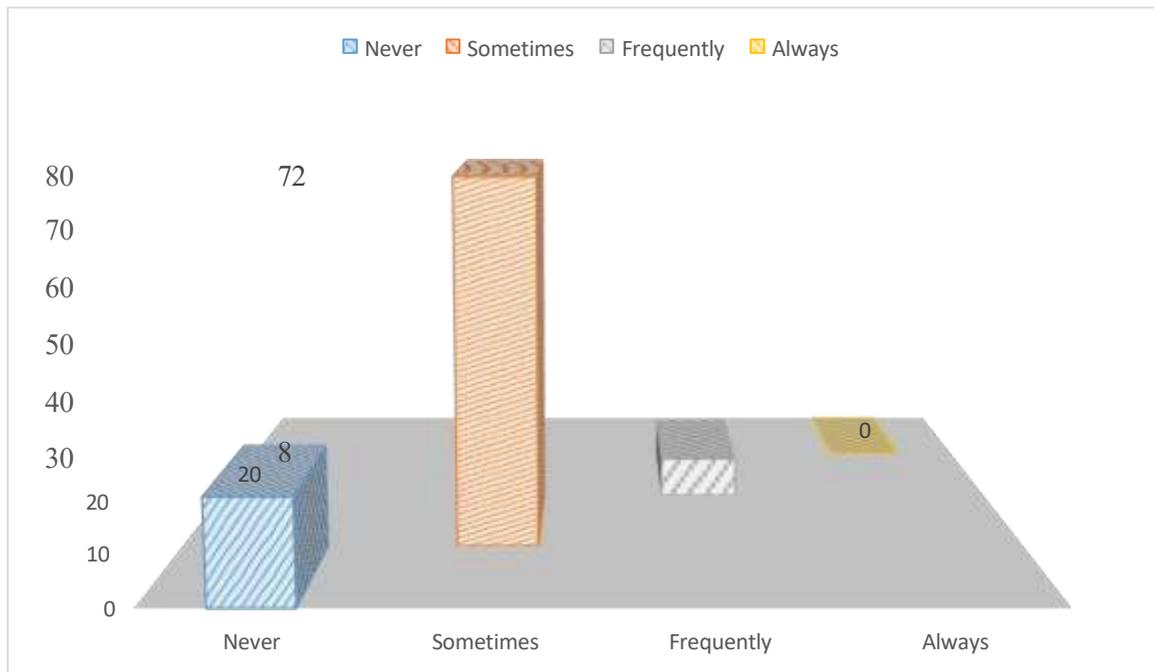
OBJECTIVE-To identify the challenges faced by businesses while making use of UPI.

Table No 4.8 showing frequency at which merchants encounter server issues.

Frequency	No of Respondents	Percentage
Never	5	20
Sometimes	18	72
Frequently	2	8
Always	0	0
TOTAL	25	100

[Source: Primary Data]

Chart No 4.8 showing frequency at which merchants encounter server issues.



[Source: Primary Data]

INTERPRETATION:

One of the main drawbacks of UPI apps has been the server issues that users encounter at different points of time. It proves to be costly for merchants as they are sometimes not able to recover the amount lost due to server issues. From the above table and chart, it is fairly visible that 72% of the merchants surveyed have faced server issues some time or the other. It is not an issue that seems to last for a long time but one which can cause short-term losses to businesses over the course of time. 20% of merchants have never faced this issue, so it depends on the bank used by the customer as well.

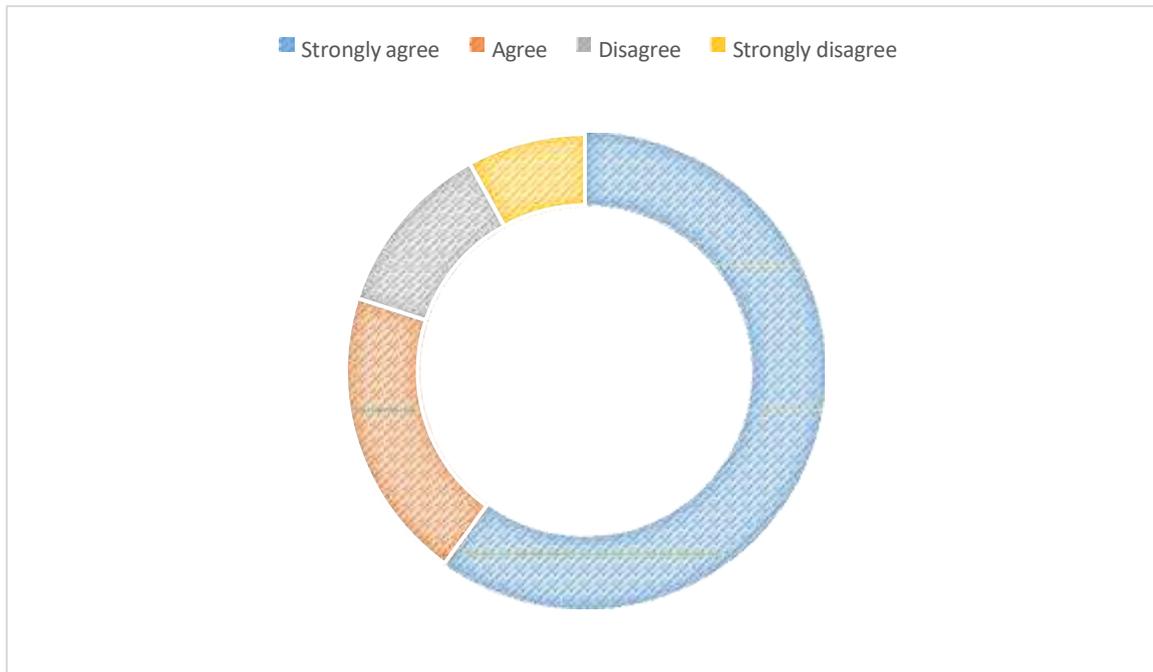
OBJECTIVE-To understand the ease and reliability of UPI apps.

Table No 4.9 showing ease and reliability of use of UPI apps.

Responses	No of Respondents	Percentage
Strongly agree	15	60
Agree	5	20
Disagree	3	12
Strongly disagree	2	8
TOTAL	25	100

[Source: Primary Data]

Chart No 4.9 showing ease and reliability of use of UPI apps.



[Source: Primary Data]

INTERPRETATION:

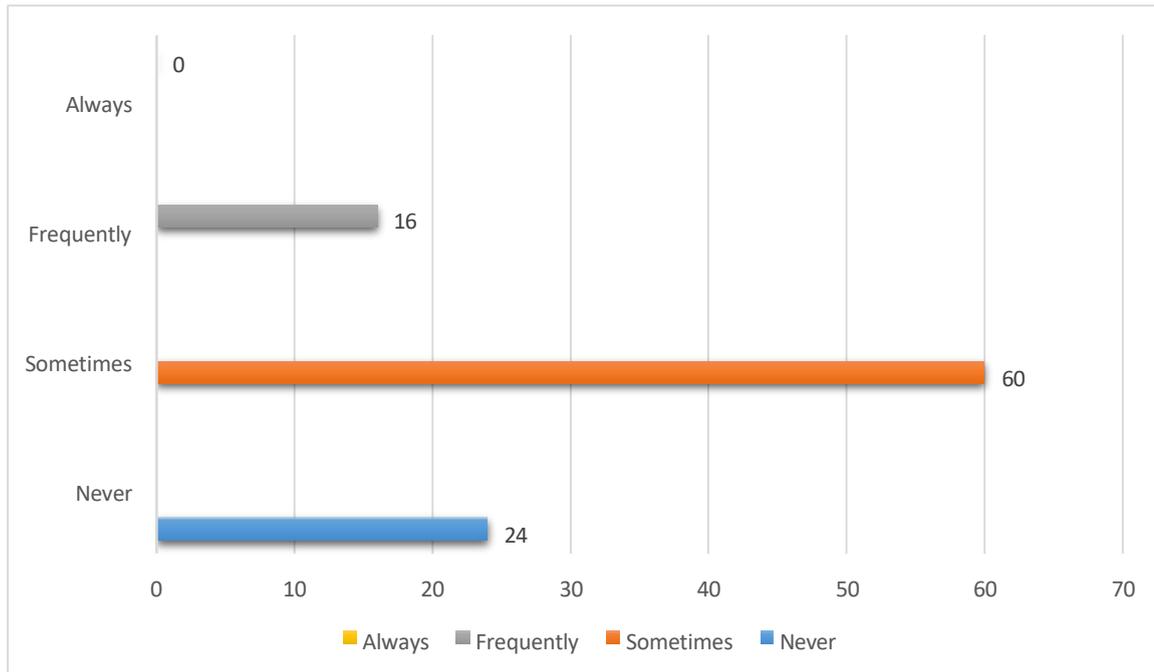
UPI apps are fairly easy to use and is user friendly but since it’s just been only a while after its introduction people are yet to get the hang of it. But after some months of use and valuable improvements and bug fixes UPI can certainly prove to be a reliable app. But still 60% of people surveyed feel that it is very reliable and easy to use. 8% of merchants strongly disagree and are of the opinion that UPI is not very reliable.

Table No 4.10 showing frequency with which payment has been delayed.

Frequency	No of Respondents	Percentage
Never	6	24
Sometimes	15	60
Frequently	4	16
Always	0	0
TOTAL	25	100

[Source: Primary Data]

Chart No 4.10 showing frequency with which payment has been delayed.



[Source: Primary Data]

INTERPRETATION:

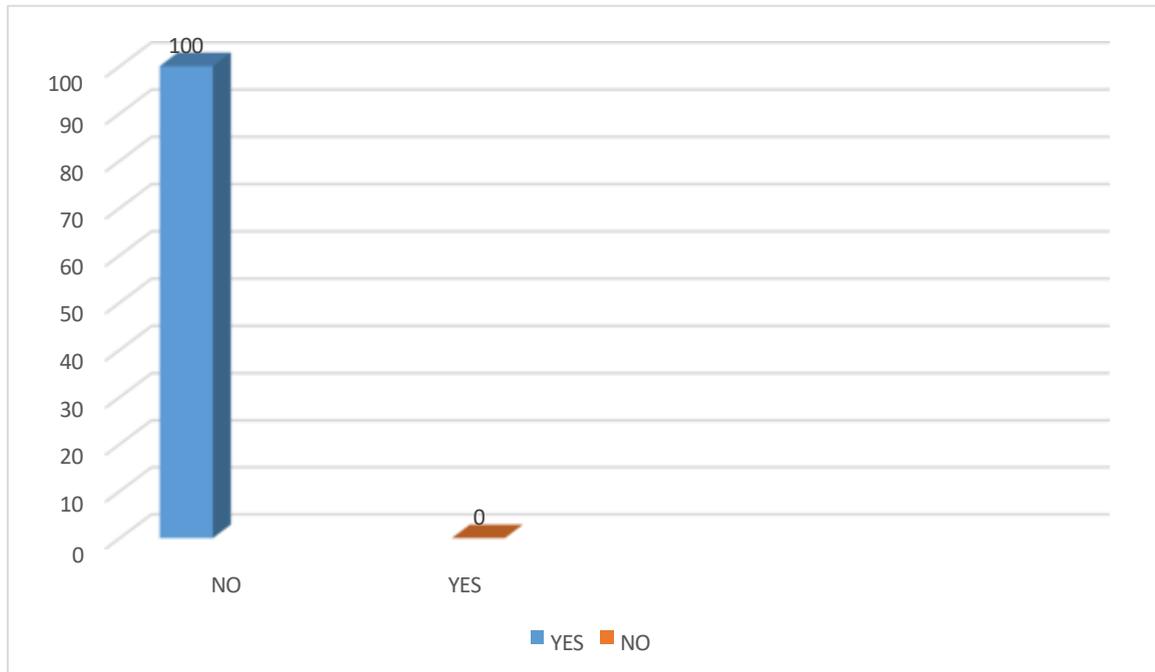
Another drawback of UPI app is payment delay experienced by merchants while making use of UPI apps. Even this is a temporary issue and is one which can be fixed by bug fixes and updates. 60% of the surveyed say that this kind of delay happens only occasionally while 24% agree that it never happens. On the other hand, 16% says it happens frequently.

Table No 4.11 showing whether the merchant has been on the end of hacking.

Responses	No of Respondents	Percentage
YES	0	0
NO	25	100
TOTAL	25	100

[Source: Primary Data]

Chart No 4.11 showing whether the merchant has been on the end of hacking.



[Source: Primary Data]

INTERPRETATION:

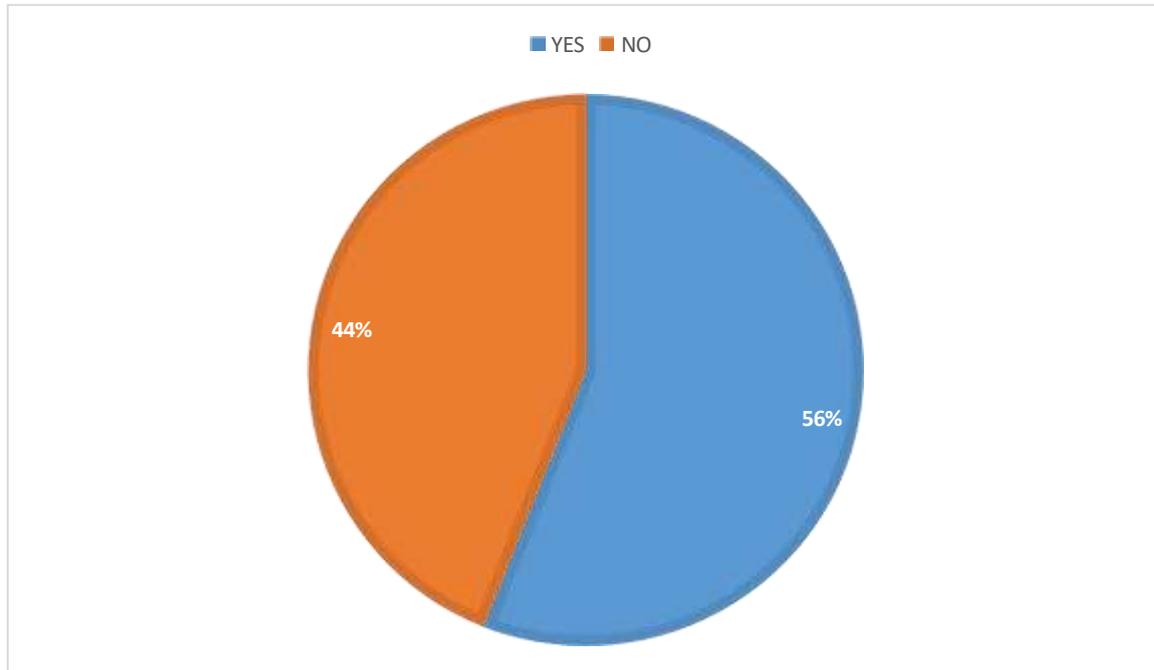
UPI is rumoured to an unsafe app but one the advantage of this app is its safety. When asked about hacking of UPI account of merchants, 100% of the surveyed said their account is safe and has never been hacked. UPI apps are protected by BHIM pin as well a specific app pin so there is double safety.

Table No 4.12 showing whether merchants feel UPI is the perfect alternative for cash.

Responses	No of Respondents	Percentage
YES	14	56
NO	11	44
TOTAL	25	100

[Source: Primary Data]

Chart No 4.12 showing whether merchants feel UPI is the perfect alternative for cash.



[Source: Primary Data]

INTERPRETATION:

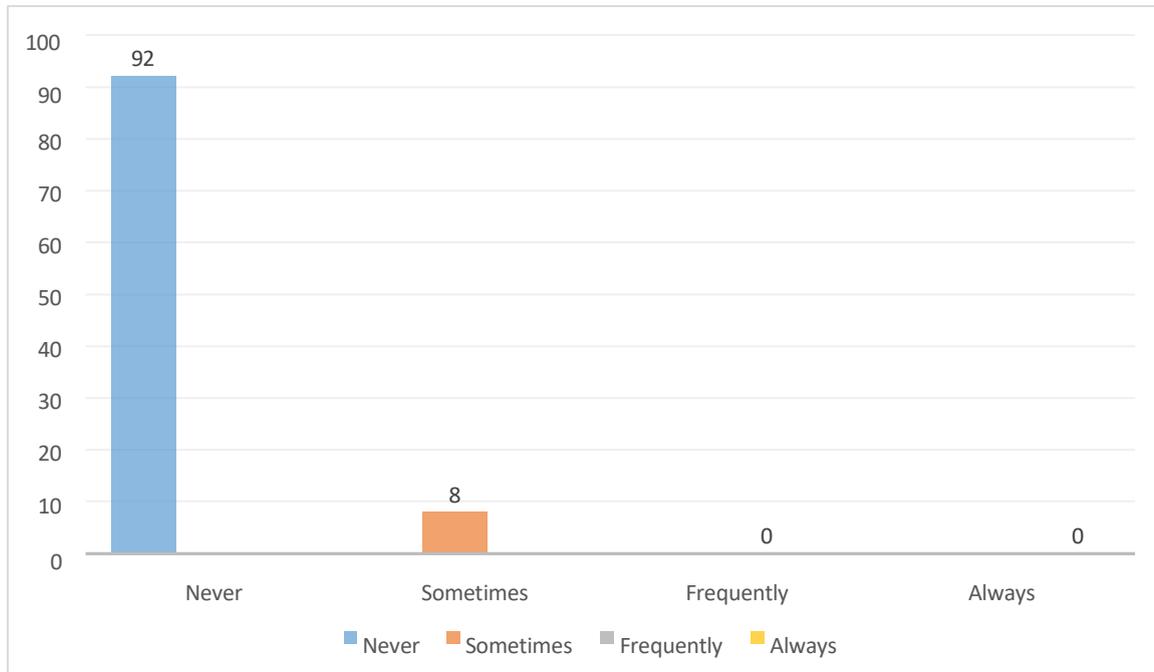
UPI has made payments fast and easy but the fact whether it can perfectly replace cash still is still worth a debate. While 56% of the people feel that it can perfectly replace cash due to the advantages like payment directly to the account and receipt of exact change, 44% still feel that it has to go a long way in replacing cash as people are used to a cash economy and will take time for them to adjust to a cashless one.

Table No 4.13 showing frequency with which merchants receive message showing transaction success but not received money.

Frequency	No of Respondents	Percentage
Never	23	92
Sometimes	2	8
Frequently	0	0
Always	0	0
TOTAL	25	100

[Source: Primary Data]

Chart No 4.13 showing frequency with which merchants receive message showing transaction success but not received money.



[Source: Primary Data]

INTERPRETATION:

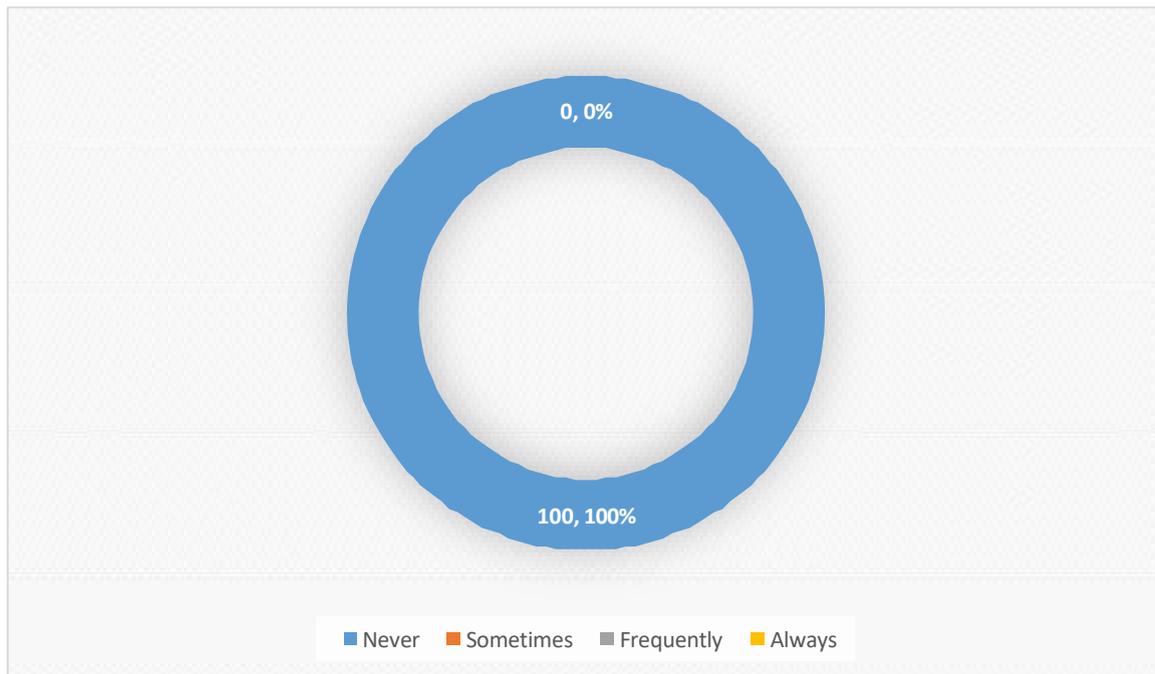
UPI is a reliable app and people can trust it while making and receiving payments but in very rare cases we have found that it lacks reliability. 8%, that is, 2 out of the 25 survey received message stating transaction success but have not received money instantly and have received it on a later stage. This may be due to bug problems and can be fixed with updates.

Table No 4.14 showing whether merchants have faced problem with UPI PIN.

Frequency	No of Respondents	Percentage
Never	25	100
Sometimes	0	0
Frequently	0	0
Always	0	0
TOTAL	25	100

[Source: Primary Data]

Chart No 4.14 showing whether merchants have faced problem with UPI PIN.



[Source: Primary Data]

INTERPRETATION:

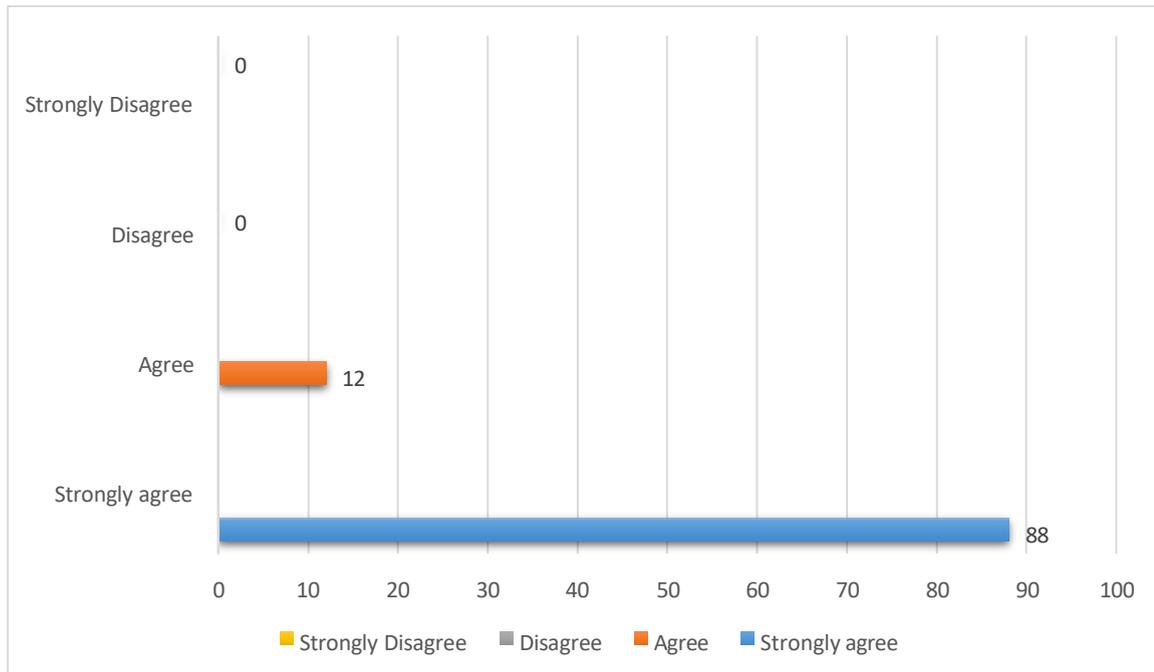
Merchants have never experienced problem with the PIN of the app while logging in, so we can say that the app is user friendly and trust worthy. All 25 surveyed have said they have never had such a problem with the app.

Table No 4.15 showing merchants take on fastness and reliability of UPI apps.

Responses	No of Respondents	Percentage
Strongly agree	22	88
Agree	3	12
Disagree	0	0
Strongly Disagree	0	0
TOTAL	25	100

[Source: Primary Data]

Chart No 4.15 showing merchants take on fastness and reliability of UPI apps.



[Source: Primary Data]

INTERPRETATION:

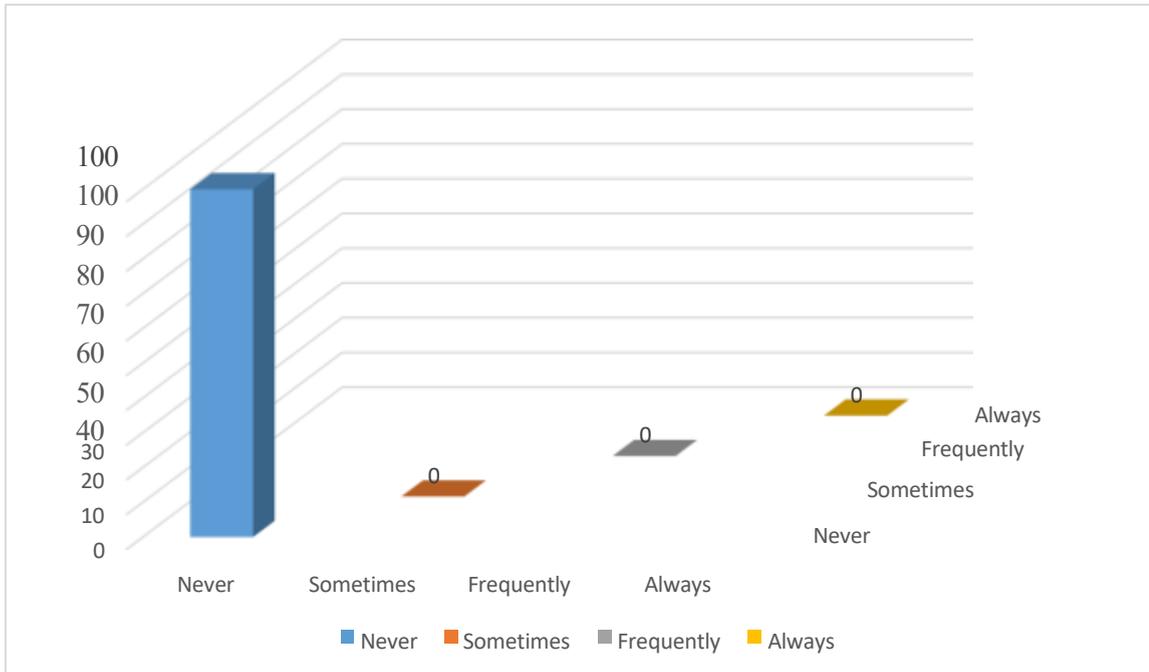
A majority of merchants believe that the app is fast and reliable and can be used to make payments instead of using debit or credit cards. 88% of the surveyed strongly agree to this and the remaining 12% also seem to agree with this fact or advantage of UPI. UPI has 50% market share in terms of digital payment in India presently and will continue to grow at a faster rate.

Table No 4.16 showing whether the app has ever charged any extra amount on any of the transaction.

Frequency	No of Respondents	Percentage
Never	25	100
Sometimes	0	0
Frequently	0	0
Always	0	0
TOTAL	25	100

[Source: Primary Data]

Chart No 4.16 showing whether the app has ever charged any extra amount on any of the transaction.



[Source: Primary Data]

INTERPRETATION:

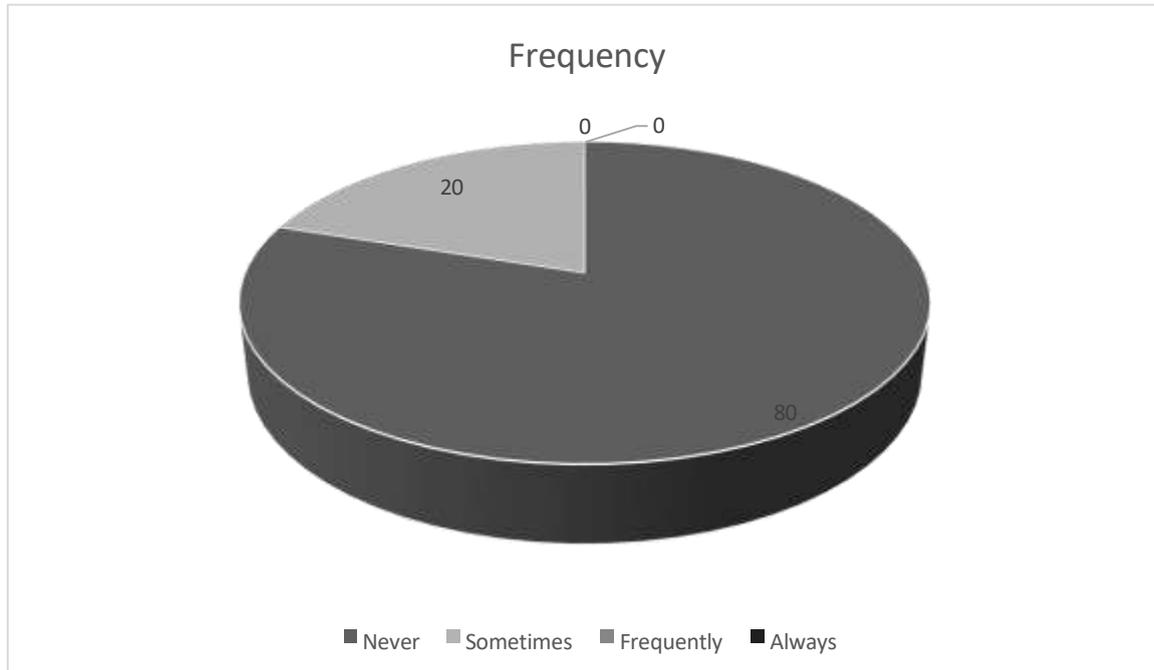
Along with being fast and reliable the app does not charge any commission on services provided by it. 100% of the surveyed responded and said they have never charged an extra amount on any transaction made or received by them from their shops. UPI agents also help them in setting up account and give them the QR code which can be scanned for making payments.

Table No 4.17 showing whether the customers face any problems while scanning the QR code.

Frequency	No of Respondents	Percentage
Never	20	80
Sometimes	5	20
Frequently	0	0
Always	0	0
TOTAL	25	100

[Source: Primary Data]

Chart No 4.17 showing whether the customers face any problems while scanning the QR code.



[Source: Primary Data]

INTERPRETATION:

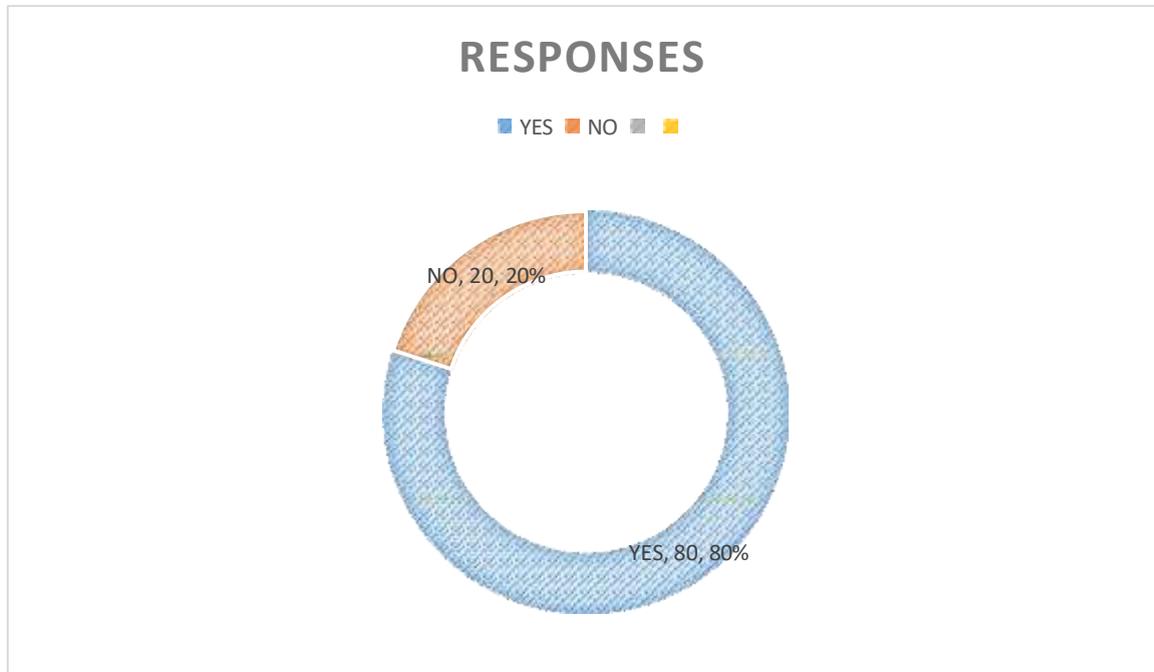
Scanning of the QR code makes the work of the customers easy as they just have to scan a QR code to make the payment. But 20% of the surveyed have said that there are customers who have faced problems with scanning of the code. This may be because of problems with camera of the phone used by the customer or a faded QR code due to passage of time.

Table No 4.18 showing whether Merchants would recommend it to other Merchants or Individuals.

Responses	No of Respondents	Percentage
YES	20	80
NO	5	20
TOTAL	25	100

[Source: Primary Data]

Chart No 4.18 showing whether Merchants would recommend it to other Merchants or Individuals.



[Source: Primary Data]

INTERPRETATION:

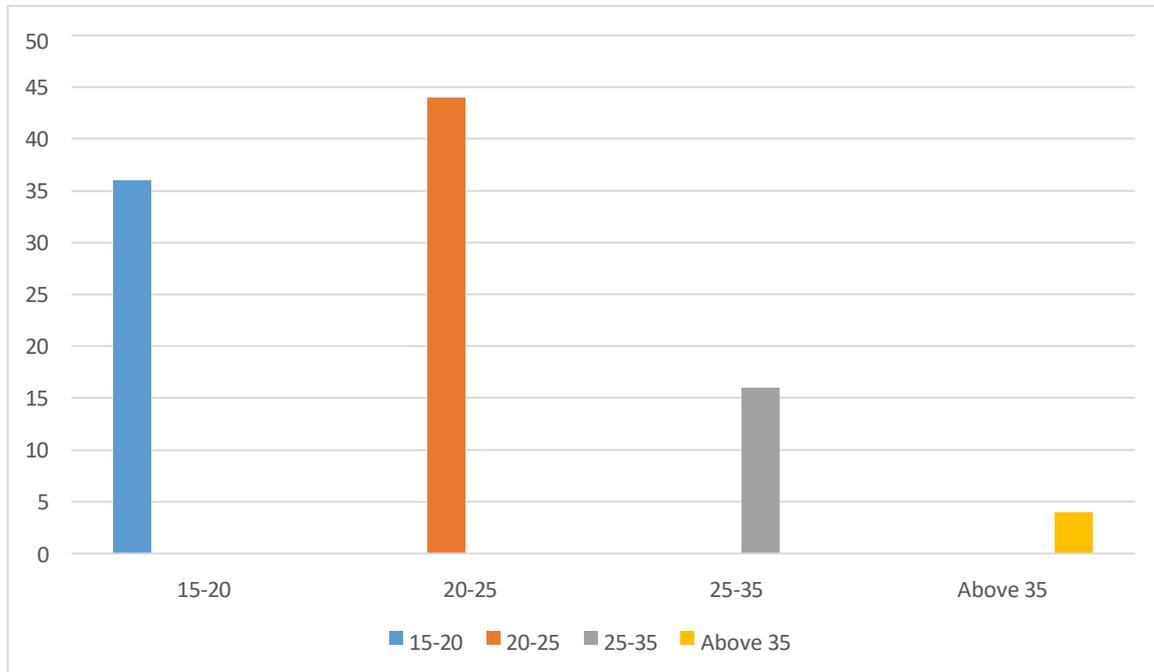
80% of the merchants surveyed said it is a fast and reliable app and they would recommend it to other merchants as well as individuals alike. They feel it would help us shift to a cashless future economy but 20% still feel it’s not yet up to the mark and needs a lot of improvement to become a trust worthy app that can be used by all the businesses of any nature. Due to the transaction limit of Rs 100000 at a time it is not suitable for large concerns as well.

Table No 4.19 showing the average age of people making use of UPI.

Age Group	No of Respondents	Percentage
15-20	9	36
20-25	11	44
25-35	4	16
Above 35	1	4
TOTAL	25	100

[Source: Primary Data]

Chart No 4.19 showing the average age of people making use of UPI.



[Source: Primary Data]

INTERPRETATION:

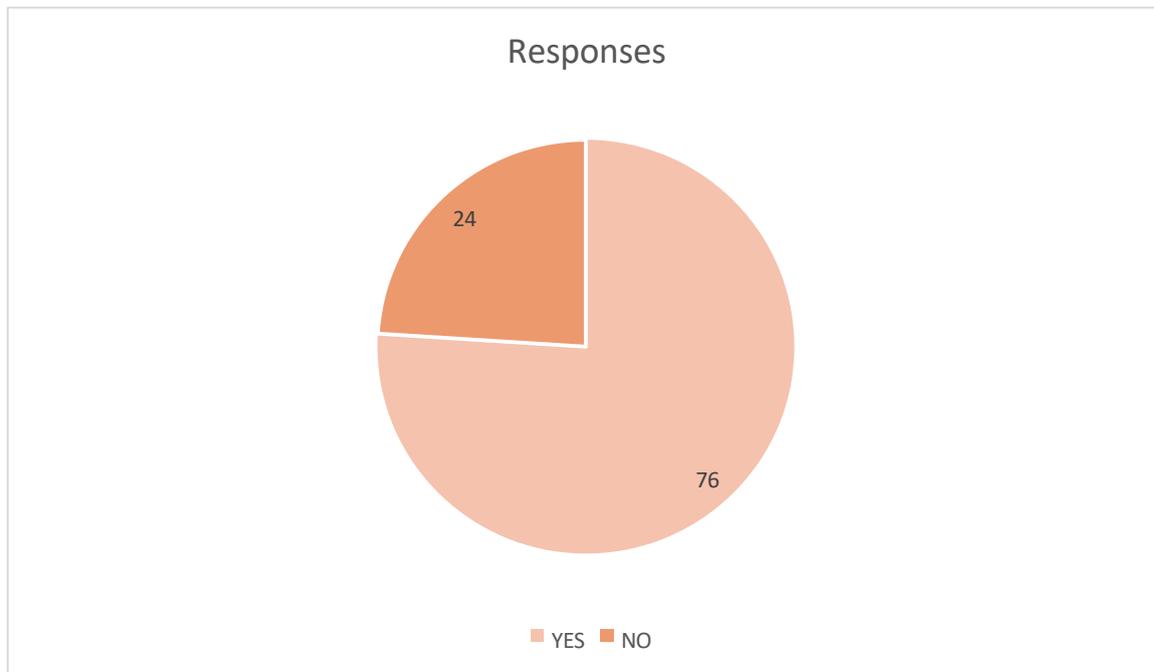
From the above table and graph we can see that UPI has gained popularity among the youth especially the college and pre university students. But school students are also not far behind and elders above the age of 35 have also started using the UPI apps for making payments. We can conclude that it is an app for all ages and that people from all backgrounds and ages shall make use of this app for making payments.

Table No 4.20 showing whether merchants have received any offer from the app.

Responses	No of Respondents	Percentage
YES	19	76
NO	6	24
TOTAL	25	100

[Source: Primary Data]

Chart No 4.20 showing whether merchants have received any offer from the app.



[Source: Primary Data]

INTERPRETATION:

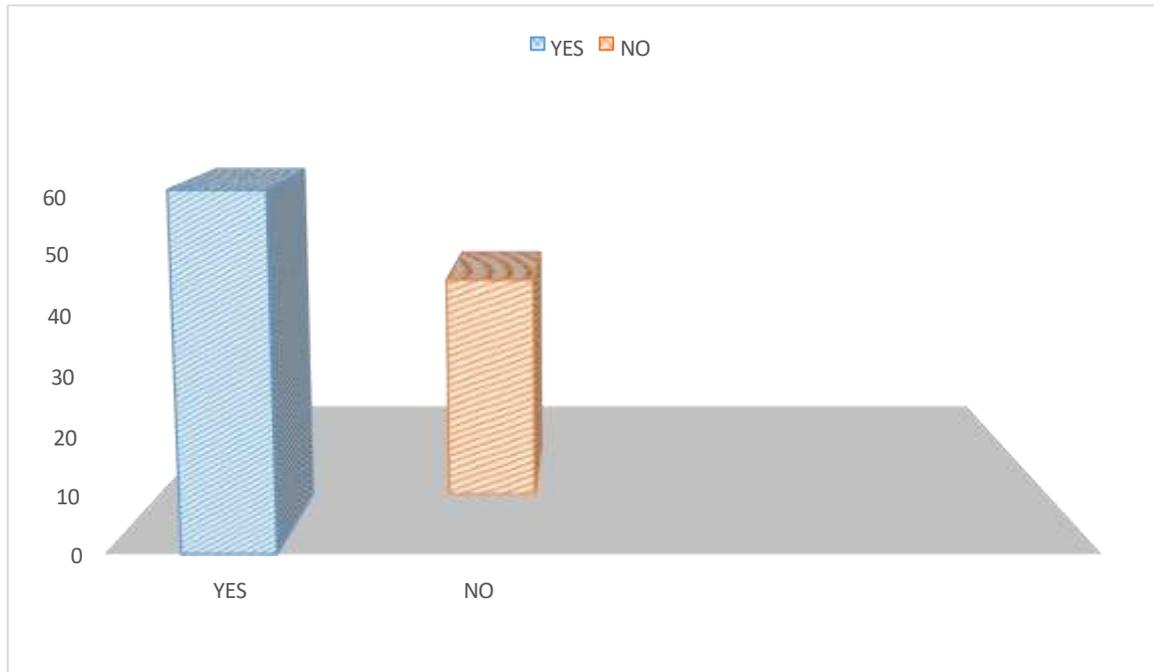
UPI apps have a large number of companies linked to them and provide various offers for payment made to those companies using UPI. Some of the merchants aren't aware of such offers provided by the app and some have just neglected that fact. But 76% of people are aware of the offers and have even availed some of them whereas 24% of the merchants surveyed aren't aware or have not availed any offers provided by UPI apps.

Table No 4.21 showing whether merchants have received any cashback on referral to others.

Responses	No of Respondents	Percentage
YES	15	60
NO	10	40
TOTAL	25	100

[Source: Primary Data]

Chart No 4.21 showing whether merchants have received any cashback on referral to others.



[Source: Primary Data]

INTERPRETATION:

This one is similar to the one with offers from the app. Some of the merchants aren't aware of cashback on referral to others and chance of cashback of up to Rs 1000 when 150 or more is paid to a person. 60% of the surveyed have made use of the feature and have availed cashback but 40% are either unaware or have not bothered to see this advantageous side of using the app.

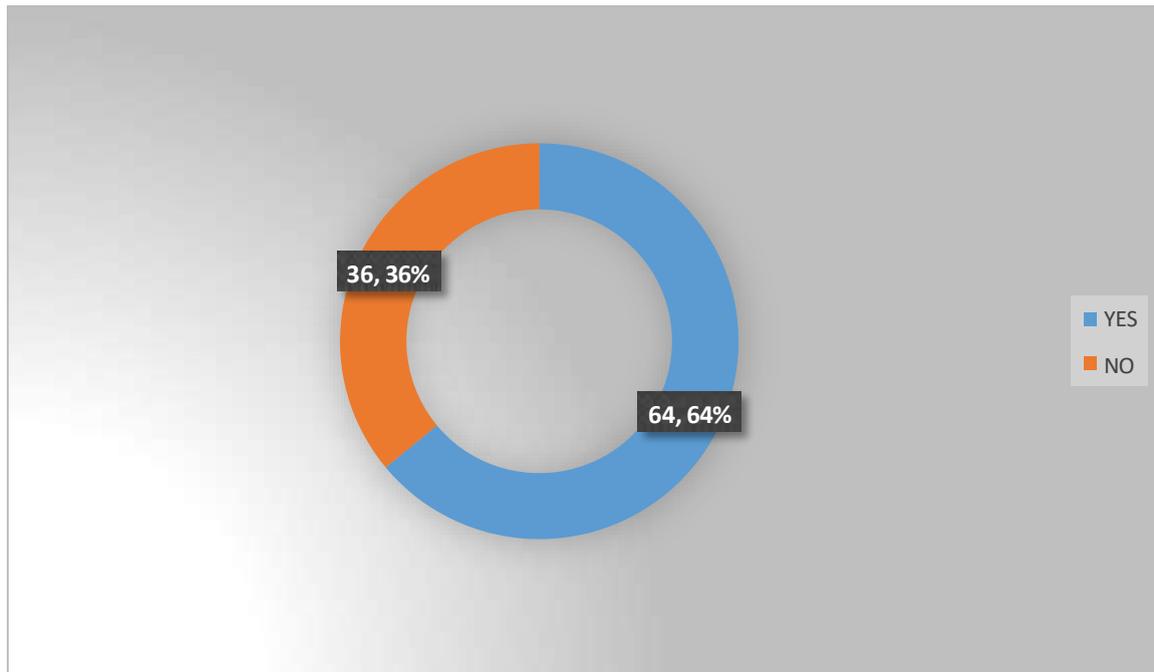
OBJECTIVE-To enquire about the increase in customers with introduction of UPI.

Table No 4.22 showing whether the introduction of UPI has increased the number of customers visiting their shops.

Responses	No of Respondents	Percentage
YES	16	64
NO	9	36
TOTAL	25	100

[Source: Primary Data]

Chart No 4.22 showing whether the introduction of UPI has increased the number of customers visiting their shops.



[Source: Primary Data]

INTERPRETATION:

I got some mixed responses on whether the people visiting their shop has increased with the introduction of UPI at their shop. 36% said No, there hasn't been any changes in the number of people visiting their shop but 64% said their customers have increased and has resulted in increase in their turnover as well. Once when all the shops introduce UPI and UPI lifts the transaction value limit then a larger amount of people making use of UPI will come to stores making use of the facility.

CHAPTER – 5 FINDINGS, SUGGESTIONS & CONCLUSION

FINDINGS

- ❖ As per the study all the businesses surveyed were making use of UPI apps.
- ❖ According to the study majority of the merchants are making use of all the UPI apps whereas some have preferences in using apps.
- ❖ Majority of merchants were making use of the apps for more than a year while some have only started the use for 2-6 months.
- ❖ Majority of the Merchants came to know about UPI apps through the agents appointed by a particular app. In most of the cases it was Phone Pe agents who were responsible for setting up UPI QR codes in shops whereas 12% came to know from word of mouth and 8% from print media.
- ❖ There is huge potential for UPI in BANGALORE and it can clearly increase turnover of merchants once properly implemented. 60% say there's increase in turnover whereas 40% say there's no change.
- ❖ Around 60% of the surveyed received more than 30 transactions in a day which shows the customers shift toward UPI payments.
- ❖ Since the survey was conducted on small business which weren't identical in nature, each business showed different amount of earnings in a month.
- ❖ Server issues can be recognised as one of the biggest problems of UPI payments. Around 72% of the surveyed businesses have faced server related problems.
- ❖ According to the study 60% of the surveyed strongly agree that UPI apps are safe and reliable. The others

who disagree with this statement have not got the hang of the app yet due to short period of use.

- ❖ Just like server issues, payment delay is another temporary problem faced by merchants which can be fixed by bug fixes. Around 60% have encountered payment delays.
- ❖ UPI is deemed to be a safe app and none of the surveyed have been on the end of hacking.
- ❖ Mixed responses were received when asked if UPI can prove to be a perfect alternative for cash. 56% said YES whereas 44% said it cannot replace cash easily.
- ❖ Only 8%, that is 2 out of the 25 surveyed received message showing transaction success but have not received the money. This problem may be fixed with constant updates.
- ❖ The merchants have never faced problems with the UPI PIN of the apps.
- ❖ Around 90% of the total surveyed strongly agree that UPI apps are fast and reliable and remaining 10% too agree to this statement.
- ❖ A perfect 100% of the surveyed said that UPI have never charged any extra amount on transactions.
- ❖ Around 80% of the surveyed said customers have never faced problem with scanning of QR code whereas 20% said some customers find it difficult to scan QR codes. This problem may even be because of camera in the phone used by customers.
- ❖ Around 80% of the surveyed merchants told they would recommend this app to others, on the other hand 20% disagreed and said it is not an app worth recommendation.
- ❖ The average age of people making use of UPI apps are between the age group of 15-25 which includes school as well as college students.
- ❖ More than 75% of the merchants have received or made use of offers from the app but the remaining are not aware of the offers available.
- ❖ Around 60% of the surveyed have made use of the app and received cashbacks but 40% are either unaware of this feature or have neglected it.
- ❖ There is clarity that the numbers of people visiting the shops have increased due to the introduction of UPI, but still 36% feel that there hasn't been any increase in the number of people visiting the shops.

SUGGESTIONS

- ❖ It is suggested to regularly update the apps for better experience and to avoid delayed payments and server issues.
- ❖ Merchants are advised to show clearly the acceptance of UPI payments with advertisements so that customers are aware of the shops that accept UPI payments.
- ❖ Merchants are advised to keep the QR codes in suitable position for the customers to scan without difficulties.
- ❖ Merchants should check their phones for bank message showing credit or debit messages to confirm payment has been made.
- ❖ They should note down and report to UPI agents when they encounter server related problems.
- ❖ They are suggested to recommend it to other merchants and individuals to grow the UPI network.
- ❖ They should make use of cashbacks and offers from the app as these are value added services of the app.
- ❖ They should encourage customers to use UPI for making payments in case there is issue with giving balance to customers.
- ❖ Merchants are requested to check their balances regularly and report to UPI agent as well as bank whenever there are any problems related to bank balances.
- ❖ Merchants should continue to use the app for indefinite period in the future to reap the benefits from the app.

CONCLUSION

BANGALORE is one of the fastest growing non metro cities and it is important to step up and move towards a cashless economy. UPI is set to become a trillion-dollar industry and contribution from these cities are vital for its growth. The merchants of BANGALORE have opted for this change as it is fast, reliable and secure and most importantly the most suitable alternative for cash. People no longer have to hold cash in their pockets as your smartphone can do the job for

you. Another reason why merchants have opted for this is because one QR code is readable for payment by any of the UPI app the customer has. The main users of this app are students from colleges but the adults have also started using the app in recent times. UPI is one for the future and we can say that majority of people from BANGALORE have said yesto the future.

The survey was conducted on heterogeneous small businesses carrying out all kinds of business from stationery to bakery to juice stalls. According to the nature of the business the amount of transactions in a day and value of transactions in a month varied. The study has shown that majority of the merchants have been using the apps for a long time now and are in favour of the app. They agree that the app is user friendly and fast and reliable alternative for cash. Majority of the businesses have got to know about the app from UPI agents and a few from word of mouth and print media. UPI agents seem to follow up on issues and have also responded to problems faced by the merchants in due course of business. Continuous use of UPI can really increase the turnover of merchants in the long run. Merchants have encountered server issues and payment delays but these are all short term problems and will hopefully be solved with upcoming updates and bug fixes. But UPI is a safe app and merchants have never faced hacking issues or threats from third parties. The UPI PIN and phone PIN is secure enough to protect the bank account details of the merchants. Merchants have also received cashbacks and offers from the app but not all of them have made use of this value added service provided by the app. Introduction of UPI has certainly increased the value of sales and has also increased the numbers of customers visiting the shops. College and school students are the ones who use this app the most for making payments and they can make payments even if they don't have cash with them. Overall the benefits of the app clearly seem to exceed the limitations of it. So it can be considered as a perfect alternative for cash with a view of making this economy a cashless one.

UPI is a relatively new mode of payment launched in India in 2016 and has already become the favourite among people when it comes to digital payments. In October, the real-time payment service was responsible for over 50.49% of all digital transactions, according to data from Razorpay, a Bengaluru-based payment gateway. The city of BANGALORE has also started using this fast and reliable payment method and already has 300 + registered merchants making use of the app. Karnataka has been at the forefront of leading UPI's popularity. In October, the southern state accounted for 27.72% of total transactions in the country, according to Razorpay data (majority of it coming from Bengaluru and BANGALORE cities). With the Unified Payments Interface (UPI), third-party apps were allowed to collect the debit instructions and submit them to the account holder's bank, using the secure backend systems managed by the National Payments Corporation of India (NPCI). This deliberate decoupling has led to competition and innovation with specialised apps like PhonePe, PayTM, Google Pay, Amazon Pay and others competing to be the customer's favourite payments app. All of them work on the payment rails of the UPI. UPI has also made payments simpler by removing the need to enter lengthy bank account numbers and IFS codes. To make a UPI payment, the user has to know only the recipient's virtual payment address (VPA), which is a simple combination of username and bank name that looks similar to abc@xyzbank. In a country like India, with its low literacy levels, this kind of simplicity is essential for financial inclusion. Globally, payment systems have been privately owned duopolies because of the very nature of the business. Due to network effects, merchants and customers gravitate to the largest payment platforms, resulting in a few large players dominating the market. UPI was set up as a comparatively open, interoperable payment platform. Any bank can plug into the NPCI's backend system and offer UPI as a service to their own customers, or to third party payment apps like Google Pay and PhonePe. For customers, this means that they have a choice of more than a hundred UPI apps to choose from. UPI is also a policy innovation because it was designed to be interoperable from Day One. In many countries, payment networks have grown rapidly and regulators have tried to enable interoperability in hindsight. For example, it is only after the rapid growth of Alipay and WeChat that China has made them connect to Wang'lian, a public clearing and settlement institution for online payments. It must be noted that very few countries, including the US, have a national payment network that enables instant settlement. Three years ago, even the banks that are shareholders in the NPCI did not give it much odds of success. The rapid growth of UPI has silenced naysayers and proven that India can build a world-class payments infrastructure from scratch.

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ANNEXURE

1. Do you make use of UPI apps for receiving payments?
 - YES
 - NO
2. Which of the following apps do you make use of?
 - Google Pay
 - Phone Pe
 - BHIM
 - All of the above
3. For how long have you been making use of the apps for receiving payments?
 - 1-2 months
 - 3-6 months
 - 1 year
 - More than a year
4. How did you come to know about UPI payments?
 - Print media
 - TV, Radio
 - UPI Agents
 - Word of mouth
5. Has the introduction of UPI increased your turnover?
 - YES
 - NO
6. How many transactions do you receive in a day?

- 1-5
 - 6-15
 - 16-30
 - More than 30
7. What is the approximate value of transactions you receive in a month?
- 500-1000
 - 1000-5000
 - 5000-10000
 - More than 10000
8. Did you encounter any server issues while receiving payments?
- Never
 - Sometimes
 - Frequently
 - Always
9. Do you agree that UPI payment apps have made payment easy and reliable?
- Strongly agree
 - Agree
 - Disagree
 - Strongly disagree
10. Has the payment ever been delayed or have you received message saying “Payment Processing”?
- Never
 - Sometimes
 - Frequently
 - Always
11. Have you ever been on the end of hacking of your UPI account?
- YES
 - NO
12. Do you feel UPI payment is a perfect alternative for cash?
- YES
 - NO
13. Have you ever received message showing transaction success but not received money?
- Never
 - Sometimes
 - Frequently
 - Always
14. Have you ever faced any problem with the UPI PIN of the app?
- Never
 - Sometimes
 - Frequently

- Always
- 15. Do you feel that the app is a fast and reliable source of payment?
 - Strongly agree
 - Agree
 - Disagree
 - Strongly disagree
- 16. Have they ever charged any extra amount on payment made by you?
 - Never
 - Sometimes
 - Frequently
 - Always
- 17. Do the customers face any problems while scanning the QR code?
 - Never
 - Sometimes
 - Frequently
 - Always
- 18. Would you recommend it to other merchants or individuals?
 - YES
 - NO
- 19. What would you say is the average age of people making use of UPI apps?
 - 15-20
 - 21-25
 - 26-35
 - Above 35
- 20. Have you received any offers from the app?
 - YES
 - NO
- 21. Have you received cashback on referral to others?
 - YES
 - NO
- 22. Do you agree that introduction of UPI has increased the no of customers visiting your shop?
 - YES
 - NO