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## ACCESSIBILITY AND ADAPTABILITY OF EMERGING TECHNOLOGY AMONG MOBILE WALLET CUSTOMERS USING TAM MODEL

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### Abstract

Mobile wallet payment is a massive and unique advanced Technology platform to make cashless payments around the world. In a developing country like India, the adoption of advanced technology is more essential and it is also a part of economic development. The mobile wallet payment system and financial inclusions are part of the economic growth of the country. This study develops a conceptual model to determine the factors influencing adopting the mobile wallet payment and financial inclusion. The study aims to check the technology acceptance of cashless payment and mobile wallet in the Indian scenario. Apart from the Technology, Safety, and Social factors of TAM and UTAUT models, this study introduces two additional factors namely economic factors and Government insisting factors to analyze the adaptation of mobile wallets in Tamil Nadu. We found in this study that, the Government of India has predominantly insisted on the people to adopt the mobile wallet/ cashless payment in India. Even though the factors influence, the actual benefit of the mobile wallet is priceless and makes the customers very much comfortable to transfer the funds. This study also analyzes the risk and security issues of mobile wallets and how the customers are mentally disturbed at the time of using mobile wallet payments, and we brought a strong recommendation to overcome the issues.

**KEYWORDS:** Mobile wallet payment, Technology Acceptance, Financial Innovations, Government Insisting factors, Economic Factors.

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## **1. INTRODUCTION**

The development of mobile technology emerged in the 21<sup>st</sup> century all around the world. In the present scenario, people are using mobile phones for various purposes such as; using the internet, connect with people, communicating with others, using social media accounts, using chat with others, making payment, getting health tips, doing business, etc... People are using a Smartphone as another mind & hand of every mobile user because it can be used for recording all kinds of events in our day-to-day life. It has become mankind to the people in this present era, and so many mobile apps have come to fulfill the requirement of human beings. Initially, the mobile payment was used for mobile recharge Service only, but after the demonetization in India, the mobile wallet has been using for mobile transactions. It has become more popular among the users, in the medium of mobile transactions replacing the currency, and also these mobile wallets are positively contributed to the economic growth of the country(Sarika & Vasantha, 2019).Mobile wallets can be viewed as the mobile form of a physical wallet carried by somebody. Money can be loaded into the mobile wallet by using a debit or credit card, online banking (Lonare et al., 2018). With the help of mobile technologies the mobile financial inclusion, it is providing various banking services such as; savings, lending, insurance, and other financial services to every mobile user even though they don't have proper banking accounts(Chu, 2018).Mobile wallet helps those unbanked and under banked people can use mobile and easy access, it helps to bridge the gaps between the physical, mobile, and psychological use and access to money (VariPark, 2017). The app users are varying in different places and purposes; it grabs the attention of mobile apps to assist in financial inclusions for making payments to transferring money. Consumers download these mobile wallet apps on their mobile screen and link their bank account details or debit/credit card details to the app to make mobile transactions(Malik et al., 2019). In this technology era, the mobile wallet has become a key to financial inclusion to access the financial service. The person is having a mobile phone and making the mobile transactions, then every phone has considered as a bank and every customer's access the financial service at low cost through a mobile wallet (Mifos, 2019).The second stage of financial inclusion is about optimizing for quality and efficiency of wallets and users around the world.

### **1.1.IMPORTANCE OF THIS RESEARCH**

Mobile technologies are increasing with various mobile services, which can be accessed by the middle-class and below the poverty line with access to banking service, insurance service, and another financial services(Chu, 2018).Convenience, versatility, and benefit to the consumer are the keys to the acceptance and success of new technology. Authentication of mobile identity with reliable three-factor security incorporating biometrics, and having doors automatically unlock as you approach, security alarm systems go into standby mode when you enter your home or office, your computer being active and unlocked only while you were sitting in front of it (with your mobile phone), and paying vendors, vending machines, or individuals, directly or with credit from your mobile phone(Weiss, 2011). Financial inclusion is firmly placed on the agenda of most governments as a key policy on priority. The diversity in the efforts towards achieving financial inclusion and the need for a progressive approach in

financial inclusion (Arun & Kamath, 2015).The mobile wallet usage is set to increase from 8% in 2015 to 15% of payments in 2020 in India. The mobile payment industry in India has a huge opportunity and is predicted to reach US \$500 billion by 2020 which contributes to 15% of India's GDP. A drastic growth was observed in the Indian economy where a 239 million smart phone user-base is using the online payment services. However, over some time, a decline in the wallet app usage has been witnessed (Baidya, 2016).This research intends to analyze factors influencing financial inclusion and mobile wallet adoption in Tamil Nadu.

## **1.2.STATEMENT OF THE PROBLEM**

The advancement of technology in the finance industry and the government insisting to adopt a mobile payment system also supported the adoption of mobile wallet payments in India. According to (Sharma & Kulshreshtha, 2019),Demonetizations has one of the weapons to change the mentality of Indian consumers to adopt technology-based payment methods that simplify their transactions. According to the market research firm, Indo-Asian News Service(2020),which surveyed across India, there are around 502.2 million Smartphone users as of December 2019, which means over 77 percent of people are now accessing wireless broadband through smart phones. Hence, the number of persons using smart phones increased the adaptation of mobile payments app with the help of a mobile wallet (m-wallet). M-wallets provide a platform for cashless transactions as well as to make all the transactions legal with the help of banks and the UPI app.

## **1.3.OBJECTIVES**

1. To ascertain the government initiative for prompting mobile wallets in India.
2. To analyze the reasons for using mobile wallets after the demonetization in Tamil Nadu.
3. To evaluate the factors influencing the customers to adopt mobile wallet payments.

## **2. THEORETICAL BACKGROUND**

(Ghezzi et al., 2010)Mobile payment is the process in which at least one phase of the transaction is conducted using a mobile device such as a mobile phone, Smartphone, or any wireless-enabled as secured processing of a financial transaction through a mobile network, or various wireless technologies (NFC, Bluetooth, RFID, etc.)". According to (Dahlberg et al., 2015)Mobile wallets are used for all types of bill payments through a mobile device such as mobile phone, smart-phone, or personal mobile assistant by taking advantage of wireless and other communication technologies".

### **2.1.PROCESS OF MOBILE WALLET PAYMENT**

As per Reserve Bank guidelines and Government norms, all the mobile wallets to be registered under the UPI and complete the KYC process. The process of mobile wallet starts with various factors like Government insisting, Technology Development and other financial services have influencing to adopt the cashless payments in India. The below figure shows the mobile wallet installation, activation, linking credit or debit card details, create UPI Id,

and set up the app lock. Once it is successful, the financial transactions can be started through a QR code scan and mobile number.

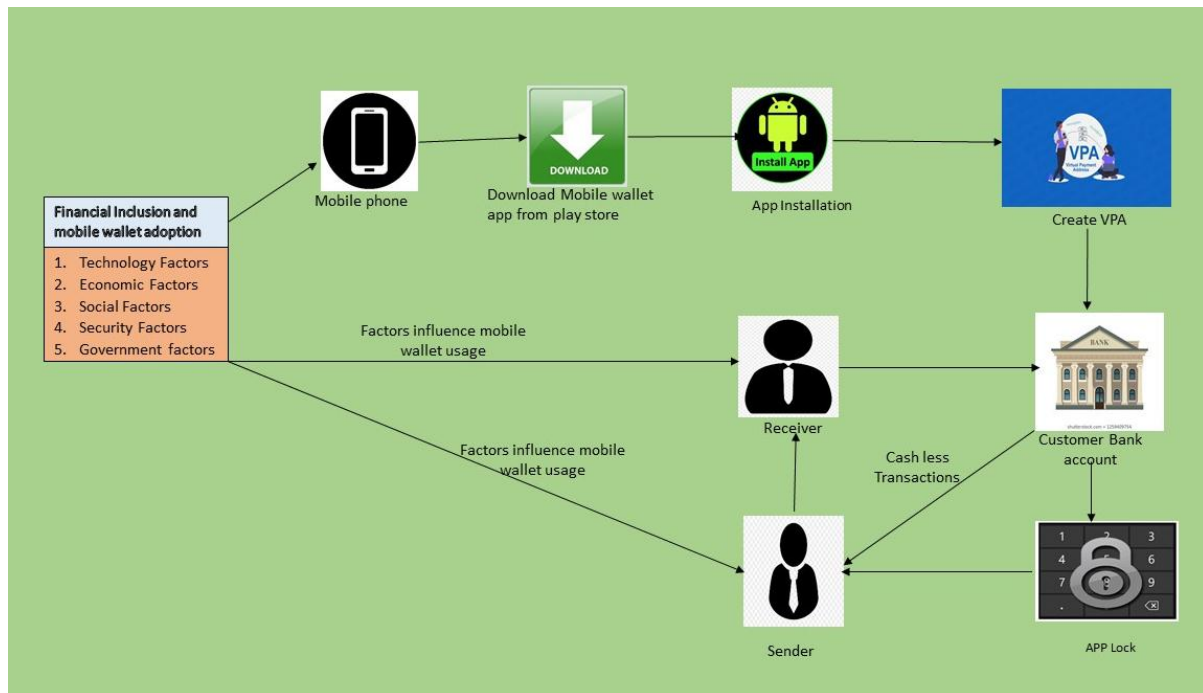


Figure 1. Process of the mobile wallet payment app: Authors compilation

## 2.2. PROPOSED RESEARCH MODEL AND RESEARCH HYPOTHESIS

As per the existing literature on mobile payment, it is understood that the adoption of mobile wallet usage is consistently growing around various countries. (Davis, 1989) has developed a Technology Acceptance Model (TAM) model to find out the behavioral factors that determine to adopt the new technology. This model determines only two dimensions such as the adoption process of the new technology and usefulness, ease of use, and the consumers' intention to use technology. TAM is considered as the most suitable model to estimate the factors influencing usage and adoption rate of the technology. Various studies have been carried out by several authors including these variables (Lederer et al., 2000; Amin et al., 2016; Seetharaman et al., 2017; Kumar et al., 2017), but these variables are not sufficient to study factors that determine consumers' behavior towards the new technology. This TAM model has not covered social factors, influencing new technology adoption, so most of the researchers felt that TAM is not considered as an effective tool for mobile wallet adoption. (Shin, 2009) has proposed an integrated UTAUT (Unified Theory of Acceptance and Use of Technology (UTAUT) model with builds of security, trust, social influence, and self-efficacy, which has an extension of TAM model deals with consumer behaviour on mobile wallet usage. The researchers found that the integrated UTAUT model proposed by Shin (2009) is appropriate and also the researcher included the economic and government insisting factors to adopt the mobile wallet consumers' in Tamil Nadu. Normally Tamil Nadu consumers are more aware of Technology and also they are enjoying usage of mobile wallet (mobile Technology).

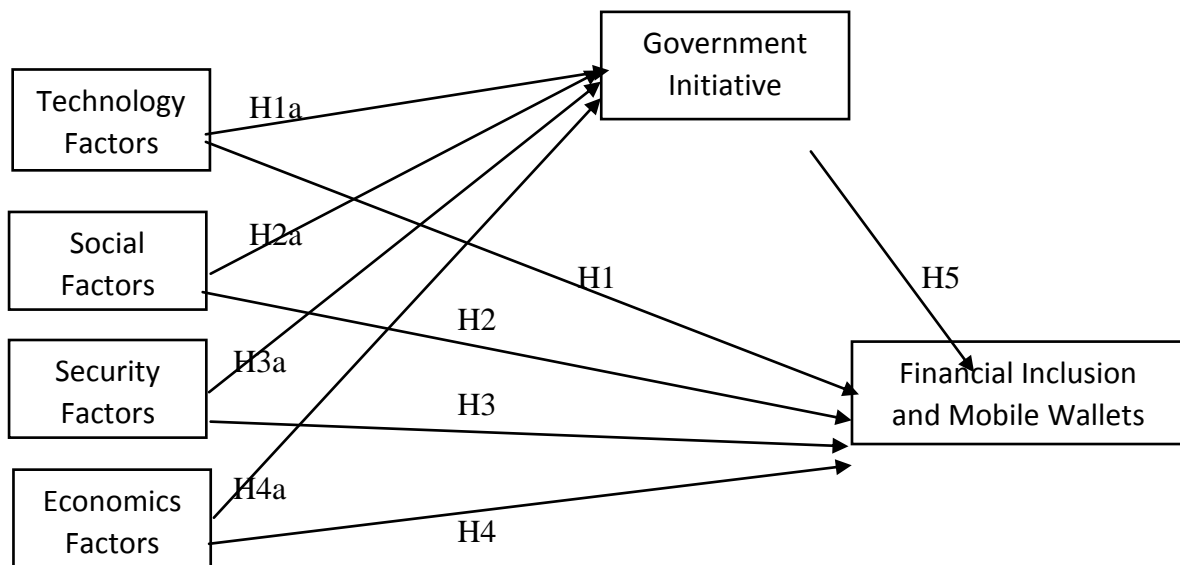


Figure 2. Proposed Research Model: Authors compilation

### 2.3.FACTORS INFLUENCED BY THE CUSTOMERS TO ADOPT MOBILE WALLET PAYMENT

#### 2.4.

The model of TAM (Technology Acceptance Model) and UTAUT (Unified Theory of Acceptance and Use of Technology) explained the intention to use mobile wallet based on customers' perceptions. In India, the customers are influenced by various factors to use the mobile wallet payment method and also adopt financial inclusions. The above model expresses the factors such as; Technology Factors, Social Factors, Security Factors, Economic Factors, and Government Initiative Factors. Whereas the technology development, Mobile India/ Make in India, and payment reference are come under technological factors.

#### 2.4.1. TECHNOLOGY FACTORS

Technology factor is a predominant factor in developing the Financial Technology era, especially the development of the mobile and mobile technology innovations among the world.(Karsen et al., 2019)Most consumers use mobile payment technology through various banking services worldwide.(Pal et al., 2020)has come with a technological factor: development of Technology, Prime minister launched Mobile India/ Make in India, and payers need payment reference of their payments, etc... (Hunafa et al., 2018)Technology (in terms of external and internal factors), personal (in terms of individual characteristics) and environment (related to social circumstances and availability of support related to the object under investigation).

H1; Technological factors positively influence the adoption of financial inclusion & mobile wallet.

H1a; Technological and Government insisting factors positively influence to adopt financial inclusion & mobile wallet

#### **2.4.2. SOCIAL FACTORS**

Social factors are other dimensions of the people to adopt mobile wallets after demonetization in Tamil Nadu. People are influenced by their social group to adopt mobile wallet payments; the factors are Using mobile wallet payment by their peers and colleagues, family members, and vendors are insisting them to pay through mobile wallet.(Arain et al., 2019)found that consumers are associate with family friends influence them to use the technology,(Davis et al., 1989; Venkatesh et al., 2003; Yuan et al., 2005) researchers have analyzed the positive influence by their family members, teachers, co-workers, friends for using& adopting mobile wallet payment.

H2; Social factors positively influence the adoption of financial inclusion & mobile wallet.

H2a; Social and Government insisting factors positively influence to adopt financial inclusion & mobile wallet

#### **2.4.3. SECURITY FACTORS**

In this technology era, protection is most essential to the users. Security factors still threatening the users due to lack of safety. The following security factors mainstream of Protection measures such as; Security payments, the Third-party can access mobile wallet account and safety payments in mobile wallet payment...(Kang, 2018)mobile wallet security is sensitive information of the user is not exposed to malicious attackers, mobile payment services must be constructed securely in terms of both HW and SW, and even if multiple payments.(Yang et al., 2015) different perceived risk dimensions that hinder mobile payment (m-payment) acceptance, and the risks and trust factors inevitably led to increased challenges and become a major concern in the adoption of mobile payment service and security(Hossain, 2019; Isaac & Zeadally, 2014; Wang et al., 2016).It also found three security threats, like malware, SSL/TLS vulnerabilities, and data breaches, and four security challenges, i.e., malware detection, multi-factor authentication, data breach prevention, and fraud detection and prevention in mobile payment systems(Godbole & Pais, 2008; Pasquet et al., 2008). (Hashemi & Soroush, 2006)the proposed technique is independent of security measures and the systems inside banks and financial institutions.

H3; Security factors positively influence the adoption of financial inclusion & mobile wallet.

H3a; Security and Government insisting factors positively influence to adopt financial inclusion & mobile wallet

#### **2.4.4. ECONOMIC FACTORS**

Economical factor has another dimension for developing financial innovations and technology in our country. The variables are; no service charges for making mobile wallet transactions, Tax Liability, and cash back benefits from a mobile wallet.(Kuisma et al., 2007)Value is linked to the fiscal and economic value of innovation and technology when the innovation is providing lots of offers to grab the consumers for largely. The value barrier is the key to Innovation & technology services (Elbadrawy & Abdel Aziz, 2011; Laukkanen, 2016).

H4; Economic factors positively influence the adoption of financial inclusion & mobile wallet.

H4a; Economic and Government insisting factors positively influence to adopt financial inclusion & mobile wallet.

#### **2.4.5. GOVERNMENT INSISTING TO ADOPT MOBILE WALLETS**

The Government initiated the adoption of mobile wallets/payments by the general public. Such as; Pradhan Mantri Jan Dhan Yojana (PMJDY) in August 2014 to provide universal banking services for every unbaked household, based on the guiding principles of banking the unbanked, securing the unsecured, funding the unfunded, and serving unserved and underserved areas. Mobile India has launched (2005), the mobile pipeline has been laid for the implementation of PMJDY through linking of Jan-Dhan account with mobile and Aadhaar [Jan Dhan-Aadhaar-Mobile (JAM)]. Demonetization (2017) of 500 & 1000 Rupees currency notes, UPI (Unified Payment Interface) in 2016 to make interbank transactions, linking with UPI, BHIM (Bharat Interface for Money) introduce to adopt mobile payments, and other factors are payments banks, Aadher pay, etc...

**H5: Government insisting factors positively influence to adopt financial inclusion & mobile wallet.**

#### **2.5. LITERATURE REVIEW**

The Indian banking sector has undergone several changes and recorded remarkable growth since liberalization. (Hari Prasad & Bhavani Prasad, 2019) said that the development of technological innovations in the banking sector enabled operations to satisfy its customers. The technological innovations introduced in the banking sector for mobile payments made it easy for payments and settlements of banks as well as customers. (Sachdev, 2015) Communicate the similarities in many aspects of the fruitful mobile money deployments contain the regulatory construction set up by their central banks/regulators, incorporated structures, the direct principles of the business models, and the journey in which they went about building their agent networks and driving adoption. Researchers expect these aspects can be synthetic to other mobile money deployments. (Trütsch, 2016) Found that mobile wallet is not a substitute for cash payments, it is an alternative platform for doing cashless payments. (Ghosh, 2017) The usage of mobile wallets in India has created a new market segment (Taylor, 2016). Most of the marketers have promised that they will take the easy payment through technology & cashless payments. Most of them came into penetrate the market, to grab the customers for that they have come up with some cash back schemes like pay for something and get a cash back of 50% credited to your mobile wallet. Pre-demonetization, Pay TM, Free Charge, and Mobikwik were the major players in the cashless economy. (Z. Liu et al., 2019) Mobile wallet has rapidly changed the consumer's spending pattern. This meta-analysis has been conducted to identify the acceptable factors that have a significant relationship with consumers' mobile payment behaviour. (Kim et al., 2010) studied the consumer's behaviours of m-payment adoption users, and they developed a mobile payment research model which consists of two user-centric factors (personal innovativeness and m-payment knowledge) and four m-payment system characteristics such as mobility, reachability, compatibility, and convenience, etc... The researcher analyzed the model

empirically, applying survey data collected from m-payment users regarding their perceptions on mobile payment. (Pal et al., 2020) Mobile payment technology has integrated with people's socio-economic development through financial inclusion and defending security during crunches. The gap revealed that this technology had the resource for sustainable development that covers individual liberation and eco-friendly growth outside the social and economic revolution. The structure contains features like low-cost technology, easy implementation and operability, usefulness to everyone, and scope for creative appropriation. (Karsen et al., 2019) Mobile payment is using by large number of user in this world and even it has becomes one of requirement to make financial activities. The financial institution intention to offer better services through technology-oriented innovation. The mobile payment system has changed payment patterns and has the potential to improve people's quality of life and increase the bank's efficiency. In return, the risks and trust factors inevitably led to increased challenges and become a major concern in the adoption of mobile payment services. the risk and trust factors can affect the adoption of mobile payment (Sivathanu, 2019). A research model that reflects customer satisfaction and loyalty to the adoption of mobile payment services (Hossain, 2019). (Deeparani & Jeya Prabha, 2018) The mobile financial market in India is flourishing with innovative products that provide instant cash transactions through innovative technologies that will be user-friendly and economical and hassle-free. The government has taken a strong kick start to incline, a mobile payment system that allows those who even uneducated starts learning to access all the mobile financial services. (N. Singh et al., 2020) The potential for the use of mobile wallets is enormous and it is drawing attention as an alternative mode of payment worldwide. To convert the country into mobility empowered the Indian Government started 'Mobile India' in 2015 which is the prestigious programme to become a knowledge economy. "Faceless, Paperless, Cashless" is one of the supposed role and slogan of Mobile India. The government of India announced demonetization of high valued currency with an assumption to control unorganized trading, unaccounted Money, Terrorism, and Fake Currency. Mobile India platform is useful for fast, easy, and reliable transactions compared to cash transactions. But security and awareness about the system are the major challenges of the system (Suma Vally & Hema Divya, 2018). (Sarika & Vasantha, 2019) The advancement of technology and initiatives of the government to the development of mobile payment. Due to technology, mobile users can nowadays use their smart phones to make money transaction or payment by using applications installed on the phone. The growth of mobile payment increased the usage of electronic payment where goods and services are transacted without the use of physical cash. (N. Singh et al., 2017) said that the impact of society and family/friends on mobile wallet's usage. Customers learn new things from family and society and get influence with their choice and preferences. This will help institutions to understand various factors leads to mobile wallet usage and enhance the satisfaction level of customers. (Chavda, 2018) Growth in Smartphone and mobile internet users in India further fuelled the mobile payments usage in the country. Due to all such social and political developments/trends, the rate of usage Mobile payments has increased multi-fold in the recent years. Still rural people are facing with poor infrastructure, facility and knowledge related to mobile payments.



### **3. RESEARCH METHODOLOGY**

The research methodology is a Scientific & systematic process of research work. Descriptive research was conducted to find the factors that influence mobile wallet adoption and financial inclusion in Tamil Nadu. The main aim of this study to determine the factors influencing the adoption of mobile wallets after the demonetization in India. An online survey has been conducted for collecting the primary data from 203 respondents who all are using mobile wallet payments in their day to day life.

#### **3.1.CONSTRUCTS MEASUREMENT DEVELOPMENT**

The researchers used a structured questionnaire to collect data. The questionnaire consists of two parts, the first part of the information relating to the demographical factors of the mobile wallet users such as; Age, Gender, Education, Occupation, and Monthly Income. The second part is relating to the Mobile wallet usage and financial inclusion such as; Source of Mobile wallet, how long the mobile wallets were used, especially from after demonetization, Reasons for using the mobile wallet and also the information was measured through the Likert scale. The factors evaluated included “Not at all Influenced to Extremely Influenced “on Technology Factors, Social Factors, Security factors, Economic Factors and Government factors influencing to adopt mobile wallet. A pre-test survey has been conducted with self-administrated to check reliability value. The Cronbach’s Alpha reliability value of 31 items is 0.955 which is considered good, further a survey was also conducted to collect data from the respondents.

#### **3.2.SAMPLING DESIGN**

In respect of the research problems, there was a lack of a proper sampling frame for the selection of samples from the population. Finally, for the infinity population, size infinity, researchers have adopted both judgment and snowball sampling method under Non-Probability sampling techniques(Amoroso & Magnier-Watanabe, 2012).

#### **3.3.DATA COLLECTION**

Data are providing actual information relating to a mobile wallet. In this study, both primary and secondary data has been used. The primary data consists well-structured questionnaire that has been converted into Google forms and send to the mobile wallet users in Tamil Nadu. Totally 203 respondents are responding to this study. The secondary data was gathered from various sources like published information in websites, Newspapers, Business magazines, and existing research articles from Elsevier, Emerald, Springer Publications through the Mendeley sources.

#### **3.4.DATA ANALYSIS PROCEDURE**

The sample data collected were analyzed through statistical Software like SPSS and AMOS. The researchers have applied appropriate statistical tools like Descriptive statistics, Analysis of Variance, and Regression Analysis to assess the data. Regression Analysis is done to determine the relationship between variables considered for the study which are the factors influence to adopt mobile wallet & financial Inclusions. Structural equation modeling (SEM) was applied to empirically test the proposed research model. SEM is a very useful statistical procedure in surveys using cross-sectional data, combining multiple regression and factor

analysis to evaluate the measurement instrument and test the hypotheses (Bagozzi & Yi, 2012).

#### 4. DATA ANALYSIS

Demographical factors help the researchers to identify the consumer's habits, culture, family, and personal and career life. In this study, demographical factors were used to find the relation between financial inclusion and Mobile wallet adaptation.

**Table-1: Demographical Factors**

Particulars		Frequency	Percentage
Gender	Female	69	34.0
	Male	134	66.0
	<b>Total</b>	<b>203</b>	<b>100.0</b>
Age	Upto 20 Years	22	10.8
	21 to 30 Years	116	57.1
	31 to 40 Years	58	28.6
	Above 40 Years	7	3.4
	<b>Total</b>	<b>203</b>	<b>100.0</b>
Education	Up to SSLC	7	3.4
	Higher Secondary (HSC)	10	4.9
	Under Graduate	55	27.1
	Post Graduate	106	52.2
	Doctorate	25	12.3
	<b>Total</b>	<b>203</b>	<b>100.0</b>
Occupation	Homemaker	4	2.0
	Private Employee	106	52.2
	Govt Employee	5	2.5
	Self-Employed Professional	6	3.0
	Business	17	8.4
	Student	65	32.0
	<b>Total</b>	<b>203</b>	<b>100.0</b>
Monthly Income	Upto Rs 5000	48	23.6
	Rs 5001-10000	19	9.4
	Rs 10001-15000	29	14.3
	Rs 15001-20000	27	13.3
	Above Rs 20000	80	39.4
	<b>Total</b>	<b>203</b>	<b>100.0</b>

Source: Primary Data

**Table No-2: Mobile Wallet Factors**

Particulars		Frequency	Percentage
Duration of Using Mobile Wallet	Less than 1 year	71	35.0
	1-3 years	50	24.6
	3-5 years	32	15.8
	above 5 Years	50	24.6
	<b>Total</b>	<b>203</b>	<b>100.0</b>
Number of Wallets	Upto 2 Wallets	137	67.5
	3-4 Wallets	59	29.1
	5-6 Wallets	6	3.0
	Above 6 Wallets	1	0.5
	<b>Total</b>	<b>203</b>	<b>100.0</b>
Sources of Mobile wallet	Friends	141	69.5
	Government	16	7.9
	Retail shops	12	5.9
	Banks	28	13.8
	Super Mart	6	3.0
	<b>Total</b>	<b>203</b>	<b>100.0</b>

**Source:** Primary Data

Some of the existing studies already proved that there is a significant relationship between Gender and mobile wallets usage. Especially (S. Singh, 2014; Van Slyke, et al., 2010) have found a significant difference among the male and Females concerning Adopting and getting the information. According to the Independent sample, the T-test has proved that the significant difference between males and Females for getting the Source of information about Mobile wallet usage. From table-4 age is not the most significant factor for using mobile wallets, but (Lu et al., 2003) found that age is the most significant factor to adopt technology, and (Laukkanen & Pasanen, 2008) found the same result in their research also.

**Table No-3**

Independent Samples Test								
		Levine's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Source of Mobile Wallet	Equal variances	16.586	0.000	-2.483	201	0.014	-0.446	0.180
	Not Equal variances			-2.664	166.119	0.008	-0.446	0.167

**Source:** Primary Data

**Table No-4**

<b>ANOVA</b>							
<b>Reasons for Using Mobile wallets</b>		<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>	<b>Results</b>
To Make Easy Payment	Between Groups	54.521	30	1.817	1.239	0.199	Reject @ 5% Level
	Within Groups	252.366	172	1.467			
	Total	306.887	202				
Scan QR Code & Transfer Fund	Between Groups	47.608	30	1.587	0.984	0.497	Reject @ 5% Level
	Within Groups	277.388	172	1.613			
	Total	324.995	202				
For Booking Tickets	Between Groups	45.326	30	1.511	1.062	0.390	Reject @ 5% Level
	Within Groups	244.772	172	1.423			
	Total	290.099	202				
Adopting technology	Between Groups	42.139	30	1.405	0.957	0.536	Reject @ 5% Level
	Within Groups	252.540	172	1.468			
	Total	294.680	202				
Recording the transactions	Between Groups	47.484	30	1.583	1.114	0.324	Reject @ 5% Level
	Within Groups	244.368	172	1.421			
	Total	291.852	202				
Ability to pay any time	Between Groups	53.701	30	1.790	1.439	0.078	Reject @ 5% Level
	Within Groups	213.983	172	1.244			
	Total	267.685	202				
To avoid the coin change problem	Between Groups	65.209	30	2.174	1.433	0.080	Reject @ 5% Level
	Within Groups	260.821	172	1.516			
	Total	326.030	202				
Need not carry the cash	Between Groups	79.864	30	2.662	1.869	<b>0.007</b>	<b>Accept at 5% Level</b>
	Within Groups	245.023	172	1.425			
	Total	324.887	202				

**Source:** Primary Data

**Table No-5****Regression Analysis on Conceptual Model fit**

<b>Model</b>	<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. error of the Estimate</b>
1	.979 <sup>a</sup>	0.959	0.958	0.763
a. Predictors: GOVT, SECURITY, SOCIAL, ECONOMIC, TECH				

**Source:** Primary Data

The above explains the model summary of regression results. R-value .979 means all the independent variables are having 97 percent of the relationship with the dependent variables. R square is .959, so the model is generalized with the value of adjusted R square .0.958.

**Table No-6**

ANOVA <sup>a,b</sup>						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2677.716	5	535.543	919.796	<b>.000<sup>c</sup></b>
	Residual	115.284	198	0.582		
	Total	2793.000 <sup>d</sup>	203			

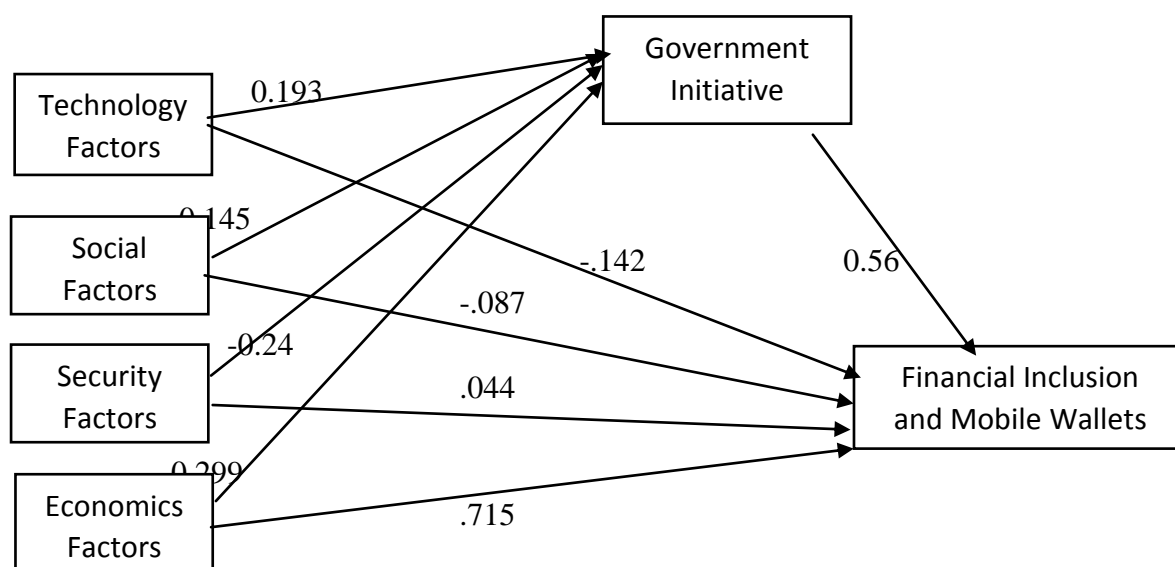
a. Dependent Variable: Factors Influence to Adopt Mobile Wallet & Financial Inclusion

**Source:** Primary Data

From the table, it is understood that the P-value .000 which is below the standard value of P .05, denotes the null hypothesis as rejected. It means the framed conceptual model influencing the adoption of mobile wallet and various factors are highly significant between the variables.

#### 4.1.HYPOTHESES TESTING

After calculating the reliability and validity of the measurement scales, the framed research hypotheses were tested, based on existing research studies. To determine the significance of each hypothesis in the path, standardized regression ( $\beta$ ) of every path was considered using structural equation modeling (SEM) [Table7]. According to (Baabdullah et al., 2019; N. Singh et al., 2017; Tajvidi et al., 2017) In the first place, H1 concerning the adoption of mobile wallet & financial inclusion we have determined that Technology factors have ( $\beta = -0.142$   $p < 0.01$ ) positive significant relationship, and the hypothesis of H1a significant relationship between Technology Factors & Government initiatives factors (Moderating Factors) ( $\beta = 0.193$   $p < 0.01$ ) have a significant relationship. In line with the literature analyzed (de Luna et al., 2019) H2 also finding empirical evidence on the positive significant relationship between Mobile wallet adaptation & financial Inclusion and Social Factors ( $\beta = -0.087$ ;  $p$ -value  $< 0.05$ ), and H2a significant relationship between Social factors & Government initiatives factors (Moderating Factors) ( $\beta = 0.145$   $p < 0.01$ ) have a significant relationship. On the other hand, H3, which suggest that Mobile wallet adaptation & Financial Inclusion and security Factors don't have a significant relationship ( $\beta = 0.44$ ;  $p$ -value  $> 0.05$ ), and H3a significant relationship between Security factors & Government initiatives factors (Moderating Factors) ( $\beta = -0.024$   $p > 0.05$ ) have don't have a significant relationship. With respect H4, adaptation of mobile wallet & financial inclusion and economic factors have significant relationship ( $\beta = 0.715$   $p > 0.01$ ), and H4a economic factors have significant relationship with government initiatives factors (Moderating Factors) ( $\beta = 0.299$   $p > 0.01$ ). Finally, H5 proved that, Government Insisting factors and adaptation of mobile wallet & financial inclusion have significant relationship ( $\beta = 0.56$   $p > 0.05$ ).

*Figure 3: Path Analysis (SEM)***Table No-7**

Hypothesis	Relationship between variables	Standardized regressions ( $\beta$ )	Critical ratio (C.R)	Supported (**=P<0.05) (***=P<0.01)	Results
H1	TECH→FACT	-.142	-3.419	Yes***	Accepted
H2	SOCIAL →FACT	-.087	-2.136	Yes**	Accepted
H3	SECU→FACT	.044	1.181	No	Rejected
H4	ECON→ FACT	.715	16.537	Yes***	Accepted
H5	GOVT→FACT	.056	.744	Yes**	Accepted
H1a	TECH→ GOVT	.193	5.292	Yes***	Accepted
H2a	SOCIAL → GOVT	.145	3.952	Yes***	Accepted
H3a	SECU→ GOVT	-.024	-.678	No	Rejected
H4a	ECON → GOVT	.299	8.621	Yes***	Accepted

**Source:** Primary Data (**TECH**-Technology Factors, **SOCIAL**-Social Factors, **SECU**-Security Factors, **ECON**-Economic Factors, **GOVT**-Government Factors, **FACT**- Factors Influencing Mobile Wallet Adoption)

#### 4.2.MEASUREMENT MODEL: RELIABILITY AND VALIDITY

In this study, the researcher has checked the composite reliability, convergent, and discriminant validity check, SEM with AMOS, with moderating effect. In the first step, we conducted Exploratory Factor Analysis (EFA) to reduce 31 items into a smaller number of factors based on factor loadings. All the items with loading more than 0.915 were considered for the study (less and equal to 0.55). Kaiser-Meyer-Oklin value was 0.955, which is above the threshold value of 0.70. Bartlett's test of sphericity (Bartlett, 1954) was found to be very

small (0.000). To test the measurement model, Cronbach's alpha coefficient of all the factors was measured, which was between 0.70 and 0.91. The accepted value for the alpha coefficient is 0.70. The below table confirms the results of Confirmatory Factor Analysis (CFA). Reliability, the validity of the constructs, and their item loadings are shown in Table 9. Indices that fit the criteria of the structural model are shown in Table 8. All the values are above the accepted levels and support past findings. Composite reliability (CR) is greater than 0.7; average variance extracted (AVE) is greater than 0.5 except for perceived risk; maximum shared variance (MSV) also more than 0.6. This research has found, the measurement and structural model demonstrated good model fit, reliability, convergent validity, and discriminant validity. Table 9 explains the correlation between various factors and the square root of the average variance extracted (AVE) for each construct. The square root of each factor's AVE is greater than its corresponding correlation coefficients with other factors. Hence, it shows good discriminant validity.

**Table -8****Goodness-of-fit Indicators of Confirmatory Factor Analysis**

Particulars	Calculated Value	Recommend value	Reference
C-Min	<b>422.883</b>	<3	(Ingram et al., 2000)
Degrees of Freedom (d.f.)	<b>160</b>		
C-Min / d.f.	<b>2.643</b>		
Root Mean Square Error of Approximation (RMSEA)	<b>0.79</b>	<0.8	(Hu & Bentler, 1999)
Comparative Fit Index (CFI)	<b>0.918</b>	>0.9	(Bentler & Dudgeon, 1996)
Normalized Fit Index (NFI)	<b>0.833</b>	>0.8	(Bentler & Dudgeon, 1996)
Goodness-of-fit Index (GFI)	<b>0.909</b>	>0.9	(Hair Jr et al., 2010)

Source: Primary Data

**Table -9**

	CR	AVE	MSV	GOVT	TECH	ECON	SECURITY	SAFETY
<b>Government</b>	0.896	0.521	0.626	<b>0.721</b>				
<b>Technology</b>	0.755	0.607	0.893	0.764	<b>0.779</b>			
<b>Economic</b>	0.799	0.571	0.854	0.791	0.678	<b>0.781</b>		
<b>Security</b>	0.836	0.63	0.893	0.783	0.945	0.919	<b>0.72</b>	
<b>Safety</b>	0.871	0.694	0.854	0.711	0.893	0.924	0.92	0.889

Source: Primary Data

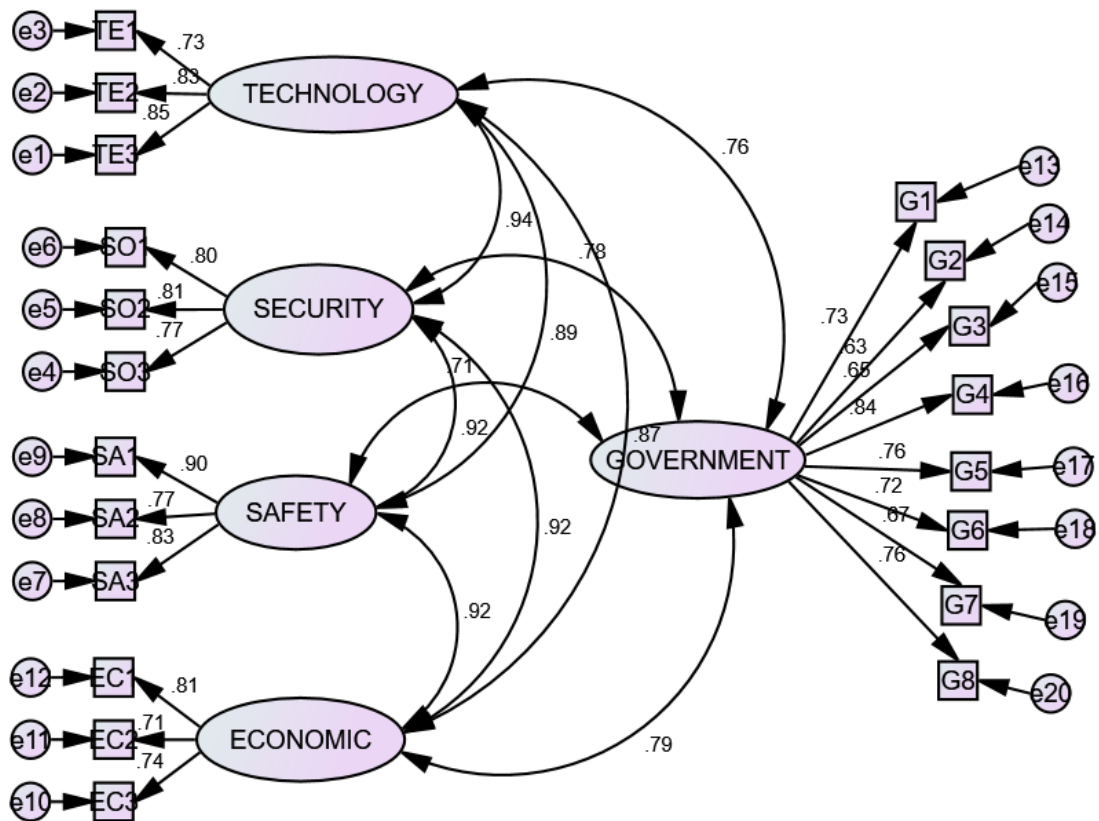


Figure-4: Confirmatory Factor Analysis

## 5. SUMMARY OF FINDINGS RESULTS AND DISCUSSIONS

The aim of this research to describe the factors that influence mobile wallets and Financial inclusions. The study contains paradigms of Mobile wallet adaptation & Mobile wallet; Technological factors, Social factors, Security factors, Economic factors, and Government Insisting Factors. Based on the above results of this study, Age is to be considered as a significant factor in to use of the mobile wallet and new technology in Tamil Nadu. Age factor was supported in existing research (Wessels & Drennan 2010) and found that age is the most influencing variable on consumer perception. (Sraeel 2006), revealed that the young generation is very much interested to use mobile technology. (N. Singh et al., 2017) also determined that age is a strong relationship between perception and customer satisfaction. This study reveals there is no significant difference between age & reasons for using a mobile wallet; it indicates age is not creating any difference for using mobile wallets.

Another variable to be considered as Gender, different studies have proved that the gender variable is impacting with consumer's satisfaction, Attitude, and Preference (Riquelme & Rios, 2010). However, a few studies also suggested that there is no effect or a significant difference (Hsbollah & Idris, 2009; Shin, 2009). The perception of Gender difference on Mobile wallet, however using mobile wallets having gender difference in North India (N. Singh et al., 2017). This study supported the existing researchers (Li et al., 2014; Y. Liu et al., 2010) found that there is a gender difference between gathering source of information of Mobile wallet.



The intention of this research to determine the influencing factors the adoption of mobile wallets & financial inclusions. The influencing factors are; Technology, Social, Security, economic, and Government Insisting factors. (Thakur, 2013) found that Technology factors have a positive relationship between Customer's intention to use, and also (Sivagurunathan et al., 2015) explained that customer's preference and Usage have a positive relationship between the new technology factors. In this study Technology factors has the influence to adopt mobile wallet payment, and also this study supports the existing research (Lin & Chang, 2011) influence to adopt mobile payment along with technology.

Social influencing factor also another important factor to adopt mobile wallet payment. This study has found that social factors have a positive influence, the existing research also proved that (Venkatesh and Davis, 2000; Venkatesh et al., 2003; Schierz et al., 2010; Venkatesh et al., 2012; Yang et al., 2012; Slade et al., 2015). It is observed that family, friends, peer groups influence to adopt the mobile wallet.

Security factors are another dimension of this study, in this study we found that there is no relationship between Government & adopting Mobile wallets. Economic factors have proved that hypothesis testing itself has a positive relationship in this study. And also Government factors has insisting the people to adopt mobile wallet & financial inclusion under the various schemes alike; Pradhan Mantri Jan Dhan Yojana (PMJDY), Jan Dhan to Jan Suresh, Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY), Pradhan Mantri Suraksha Bima Yojana (PMSBY), Atal Pension Yojana (APY), Pradhan Mantri Mudra Yojana. This study majorly focuses on Government influence to adopt the mobile wallet & cashless payments in India.

## **6. CONCLUSIONS**

Mobile wallets payments are started to using the people in India in this emerging market today. This mobile wallet gives a new experience to the user for making the payment & transferring the money. In the Indian context, mobile wallet payments fall on "Mobile India" to develop/adapt the technologies to avoid the physical cash payments in our country. The government of India is very much focusing on cashless payments, for that, they brought so many financial inclusions schemes in India. According to (Malik et al., 2019) emphasized that the Government has been insisting on many ways to adopt the mobile wallet payment methods in India. The purpose of this study to test the several factors that influence the adoption of mobile wallet payments, such as; Technological factors, Social Factors, Economic and Government Insisting factors. Some existing research's also proved that technological factors and social factors have a positive influence the people for using mobile wallet payments (Venkatesh and Davis, 2000; Venkatesh et al., 2003; Venkatesh et al., 2012; Yang et al., 2012; Slade et al., 2015; Malik et al., 2017), in this study, also got the same results. The economic factors and Government insisting factors also have significant influence with an adaptation of mobile wallet and financial inclusions in India, alike Discounts, offers from the wallets and tax liability of every customer's and also Government factors of PMJDY, Mobile India, Demonetization, etc... According (N. Singh et al., 2017) said that security factors have the influence to influence consumer's intention, but in this study, security factors not significant. The results are Indicated that all factors were significant

except security factors to adopt the mobile wallet payment, the app developed has come with strong security protection and also not reveals the account detail information to others. In the Indian market, there is high competition between the app developers/ Marketer's to attract and retain the customer's, for that they are bringing so many strategies alike Google pay, and Phoneme wallets, etc... If, mobile wallet creates any difficulties or problems from the app side, the customer's mentions the problem and they can uninstall the particular they can switch over to another app where they feel it's more comfortable to them. The government has to build more trust in the mobile wallet while transferring the funds.

Much research is done to adopt the mobile wallet, but in this study, the major focus is on the Government Insisting factor to adopt mobile wallet adoption & Financial Inclusion in Tamil Nadu wallet user's Perspective. Even though the usage rate is increasing, most of the users are mentally disturbed due to some failed payments, losing the money, Network issues, and especially these scratch cards showing that "better luck next time" and all to be avoided by App wallet developers and they need to build trust level among the customers.

## **7. Limitation and Future Scope of Research**

This research relied on primary data collected through an online survey with help of Google Form 218 respondents, out of that the researcher has omitted 15 respondents has given incomplete data. Thus, the sample size may be suffering from selection bias. Also, the respondents involved in this study different demographic categories in an uneven manner, which may influence factors influence to adopt the mobile wallet. The study has been conducted to know the factor's influence of mobile wallet payment & Financial Inclusion in Tamil Nadu, which can't be generalized all over the country. Moreover, this study has not fully followed Technology Acceptance Model (TAM) as well as the UTAUT model, but the Technology, Security, and Social factors from TAM Model and Economic and Government Insisting factors are covered in this research. Most of the respondents are started using mobile wallets very recently after the demonetization in India. In this study most of them are well educated and also all are young male customers are only involved, so this research doesn't reflect the complete view of Indian wallet users.

In the future, it can focus on a large number of samples, and also the application TAM & UTAUT model with Indian wallet customers. The results and Confirmatory factor analysis model also fit on factors influence on adaptation of mobile wallet, along with factors can also try to find Availability, Affordability of Financial Inclusion 2.0 & 3.0 and also focus on consumer's preference, satisfaction, and perception of mobile wallet in India. The present study has been conducted from Tamil Nadu; therefore the results may not be appropriate to other states in India. More researches need to conduct on the security and build trust level between customers and Mobile wallet apps. So the upcoming research is more concerned with security and sub-security factors, and also brings some innovative solution model to protect the customers.

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