Consumer Behaviour of M-wallet Users in India

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Abstract: *Purpose:* This paper aims at the study of consumer behaviour towards the use of mobile wallets in the Indian context. This paper identifies reasons for acceptance/reluctance of m-wallets. Mobile wallet is payment service which is used for sending and receiving money using mobile phones. Some of the major m-wallets in India are Paytm, FreeCharge, MobiKwik, Vodafone M-Pesa, Airtel Money etc. *Research Design/ methodology/approach:* In this study, 213 respondents are interviewed belonging to different cities of India who are using m-wallets as a payment method. The data collected is analysed using statistical tools to identify different factors affecting user behaviour towards use of mobile wallets. *Findings & Interpretation:* The study finds, how different variables related to an individual are dependent on each other. It is found that privacy & security is significantly different for levels of qualification. Further it is also found that the privacy & security is significantly dependent on age. Also, privacy & security is significant across income levels. Analysis indicates E-loyalty is significantly different across gender. And lastly, technology ecosystem is significantly different across occupation. *Research implications:* This research implies how the use of mobile wallets can be promoted by concentrating on the demographics which affect different factors related to m-wallets. *Novelty/Originality:* This research is carried out to check the relationships between various demographic factors with M-wallet acceptance and adoption.

Keywords: mobile wallet, mobile payment, cashless payment, consumer acceptance, adoption

INTRODUCTION

The 21st century is the era of evolving technology. The smartphone market and the high-speed internet connectivity has already made its place in our day-to-day life. These both technologies are the backbone for an upcoming technology trend in the market i.e. "M-wallet" or "Mobile Wallet". M-wallet has been defined by (Shin, 2009) as "a new application of mobile payment that has functionality to supplant a conventional

wallet and is a much-advanced versatile application that includes elements of mobile transactions, as well as other items one may find in a wallet, such as membership cards, loyalty cards and travel cards".

As per Reserve Bank of India master circular (Dave, 2016), m-wallets come under Semi-Closed System Payment Instruments (SCSP): SCSP instruments are nothing but the instruments used for purchasing goods and services, at a merchant location to accept the payment instruments. The semi-closed payment instruments prohibit withdrawal of cash or recovery by the holder. In this paper, we are trying to study the factors which are affecting the Indian consumer for accepting or rejecting the use of mobile wallets.

The paper is structured as follows. The next section presents a review of papers on electronic & mobile payment research, focusing majorly on factors affecting acceptance of m-wallets and their analysis. The third section describes the research methodology and the background of data collection and analysis in which a statistical hypothesis has been tested and confirmed. In the fourth section, the research has been concluded purely based on the results of section three.

Objective: This study aims to find the effects of user's demographics on different factors which promotes the use of m-wallets in India.

LITERATURE REVIEW

The theoretical foundations of cashless payment as well as electronic money were studied, with detailed emphasis on experimental studies dealing with not only mobile payments but also m-wallet adoption. The review precisely talks about the user behaviour in case of m-wallet adoption and factors affecting it.

Many researchers defined mobile payment and e-wallet differently. (Yoris A. Au, 2008) proposed that mobile payment is a type of payment method which can be used to start, approve, and support a commercial transaction with the help of mobile devices. (Tomi Dahlberg, 2007) in his research described m-payments as payments using a mobile device for goods, services, and invoices. Mobile wallet is mobile payment instrument using which a transaction is completed. According to (Chauhan, 2013), e-wallet is a payment method in which the financial data is stored in encrypted form to complete an electronic transaction without re-entering it at the time when transaction takes place. E-wallet is a system that provisions a customer's information for simple recovery for online purchases.

Further continuing with the review of the factors affecting the adoption of e-wallets and m-wallets. According to (Shin, 2009) the user behaviour for the adoption of m-wallets is influenced by attitude and intention. The factors affecting user attitude are perceived usefulness and perceived ease of use while the factors affecting user intention are the social influence, perceived security, trust, and self-efficacy. In the paper, (Shin, 2009) used the concepts of security, social impact, and self-efficacy to create the unified theory of acceptance and use of technology (UTAUT) model. The perceived security and trust also effect the users' attitudes and intentions.

The (Singh, 1999) proposed that the users' perspective presents 3 challenges for providers and policymakers. The first is to collect qualitative and quantitative data not only on the diffusion of innovations but how innovations are used and not used social and cultural contexts by different users. The second challenge is to find a relation that will link the economic analysis of supply and demand with the study of usage & trust. The third challenge is to recognize the interconnection between the economic and non-

economic aspects of our lives. The adoption of mobile payment systems as proposed by (Magnier-Watanabe, 2012) is affected by eleven variables. The key variables include perceived ease of use (PEOU), perceived usefulness (PU), perceived value, perceived security and privacy.

(Chauhan, 2013) recommended that the key factors for the success of e-wallet payment will be security, the cost of transactions, the secrecy of transactions, and the variety of functions. The five key factors affecting the mobile wallet acceptance as explored by (Shaw, 2014) are perceived ease of use, trust, mobile wallet self-efficacy, informal learning and intention to use. The results confirmed that perceived usefulness was the key factor that influenced consumers to use a mobile phone for payment. Trust also had a substantial effect, drawing special attention towards security and privacy. (Tim Kindberg, 2004) classified the users into three clusters i.e. trust-, social- and convenience-oriented clusters. (Md.Khaled Amin, 2015) analysed that Technology Acceptance Model (TAM) concepts had a straight and backhanded impact on attitude and behaviour of consumer to utilize the mobile wallet in case of country like Bangladesh.

RESEARCH METHODOLOGY

Research Design

Following the literature review which was the inception point for research, the study started with the main survey which was the first step towards our research. Initially the following core steps were carried out: designing the survey questionnaire, conducting primary survey, collecting and sorting of data, factor analysis and inferring from data.

After rigorous literature review of around 200 research papers, 21 have been shortlisted based on their relevance. Based on literature review following key factors were extracted and were used to build questionnaire.

Perceived ease of use. The level to which an individual feel that using a technology is uncomplicated and easy process (Fred D. Davis, 1989).

Technology ecosystem. How much comfortable a customer is in using a specific technology. This tells us the effect of a technology on the using pattern of the consumer.

Retailer's reluctance/acceptance. These are the obstacles/ opportunities created by the retailers. This plays a major role in adoption or rejection of a new technology.

e-Loyalty. This tells us how much loyal a customer is to a specific technology. Success of a that technology can be predicted based on the loyalty of the users.

Privacy & security. It tells us how much secure a user feels using a specific technology. It also shows how much comfortable a user is in sharing his/her personal details with the wallet

Before starting the survey, we have gone through a pilot testing mode in which we have interviewed 30 respondents to check the significance of questionnaire. To study the behavioural intention of the customers to adopt M-wallets in India, it was essential to collect the data from different parts of the country. In this study quota sampling has been used Majorly the data collected was from Mumbai, Pune (West), Bangalore (South) and Delhi NCR (North). The questionnaire used for data collection comprises of 45 questions in total in which six were demographic asked in the form of multiple choice questions, five

were related to M-wallets which are also in multiple choice format and the rest 34 questions were seven scale Likert scale for measuring the attitude of the users towards M-wallets. The primary survey was conducted in both online as well as offline manner. In total 300 respondents were interviewed out of which it is found that 213 were using M-wallet as their preferred payment method. Following the survey, the collected data was validated and the erroneous responses were omitted.

The names of the respondent are not disclosed in this paper to keep the identity of the respondents secure and expect complete cooperation from the respondents. Publicly available information such as master circular of RBI related to prepaid payment instruments and other regulatory aspects of semi-closed wallets were studied.

Research Hypotheses

Following the research objective and in consistence with the related literature this study tested, analysed and conformed following hypotheses:

H_1: Privacy & Security of m-wallets depends upon the income level of the users.

H_2: Privacy & Security of m-wallets depends on the qualification of the users.

H_3: Privacy & Security of m-wallets depends on the age of the users.

H_4: Technology ecosystem of m-wallets depends on the occupation of the users.

H_5: e-loyalty of users depends upon the gender of the users.

DATA ANALYSIS AND RESULTS

The data collected through the survey was analysed using SPSS and the developed hypotheses were tested. Following variables are used for testing the above-mentioned hypotheses:

Privacy & security. It is one of the major variable which effects the user's behavioural intention to use M-wallets. Here using one-way ANOVA, it has been found that the demographic variables income level, age group and qualification of an individual have significant influence on privacy & security of M-wallets which is testified by following hypothesis and outputs:

Null Hypothesis. Privacy & security of m-wallets is not dependent on income level of an individual.

Alternate Hypothesis. Privacy & security of m-wllets is dependent on income level of an individual.

Table 1
ANOVA Privacy & Security and Income

ANOVA
privacy reversal

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12.777	4	3.194	3.604	.008
Within Groups	133.820	151	.886		
Total	146.597	155			

Result: From table 1 the sig. value is .008 therefore the null hypothesis is failed to accept and alternate hypothesis will be accepted. The relation between privacy & security and income level can be seen in figure 1.

Table 2
Multiple Comparisons

Dependent Variable: Privacy & Security
Tukey HSD

(I) Monthly Personal Income (Rs.)	(J) Monthly Personal Income (Rs.)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Up to Rs 15000	Rs 15000 to Rs 30000	-.10333	.20399	.987	-.6666	.4599
	Rs 30000 to Rs 60000	-.69690*	.21391	.012	-1.2875	-.1063
	Rs 60000 to Rs 100000	-.10094	.32654	.998	-1.0025	.8007
	Above Rs 100000	-.41912	.35290	758	-1.3935	.5552
Rs 15000 to Rs 30000	Up to Rs 15000	.10333	.20399	.987	-.4599	.6666
	Rs 30000 to Rs 60000	-.59357*	.18773	.016	-1.1119	-.0752
	Rs 60000 to Rs 100000	.00239	.31002	1.000	-.8536	.8584
	Above Rs 100000	-.31579	.33766	.883	-1.2481	.6165
Rs 30000 to Rs 60000	Up to Rs 15000	.69690*	.21391	.012	.1063	1.2875
	Rs 15000 to Rs 30000	.59357*	.18773	.016	.0752	1.1119
	Rs 60000 to Rs 100000	.59596	.31664	.331	-.2783	1.4702
	Above Rs 100000	.27778	.34375	.928	-.6713	1.2269
Rs 60000 to Rs 100000	Up to Rs 15000	.10094	.32654	.998	-.8007	1.0025
	Rs 15000 to Rs 30000	-.00239	.31002	1.000	-.8584	.8536
	Rs 30000 to Rs 60000	-.59596	.31664	.331	-1.4702	.2783
	Above Rs 100000	-.31818	.42313	.944	-1.4864	.8501
Above Rs 100000	Up to Rs 15000	.41912	.35290	.758	-.5552	1.3935
	Rs 15000 to Rs 30000	.31579	.33766	.883	-.6165	1.2481
	Rs 30000 to Rs 60000	-.27778	.34375	.928	-1.2269	.6713
	Rs 60000 to Rs 100000	.31818	.42313	.944	-.8501	1.4864

*. The mean difference is significant at the 0.05 level.
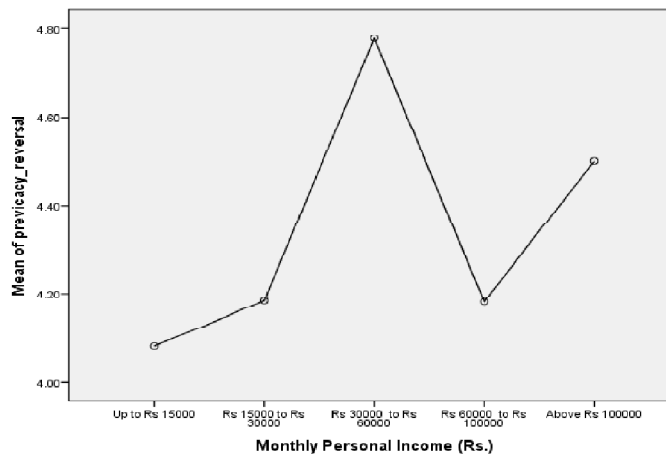

Figure 1: Privacy & Security w.r.t. Monthly personal income

Table 3
ANOVA Privacy & Security with Qualification

ANOVA

Privacy & Security

	Sum of Squares	*Df*	*Mean Square*	*F*	*Sig.*
Between Groups	8.092	3	2.697	2.895	.036
Within Groups	194.754	209	.932		
Total	202.846	212			

Null Hypothesis: Privacy & security is not dependent on qualification of the user.

Alternate Hypothesis: Privacy & security is dependent on qualification of the user.

Result: From table 3 the sig. value is .036 therefore null hypothesis is failed to accept and alternate hypothesis is accepted. The relation between privacy & security and qualification can be seen in figure 2.
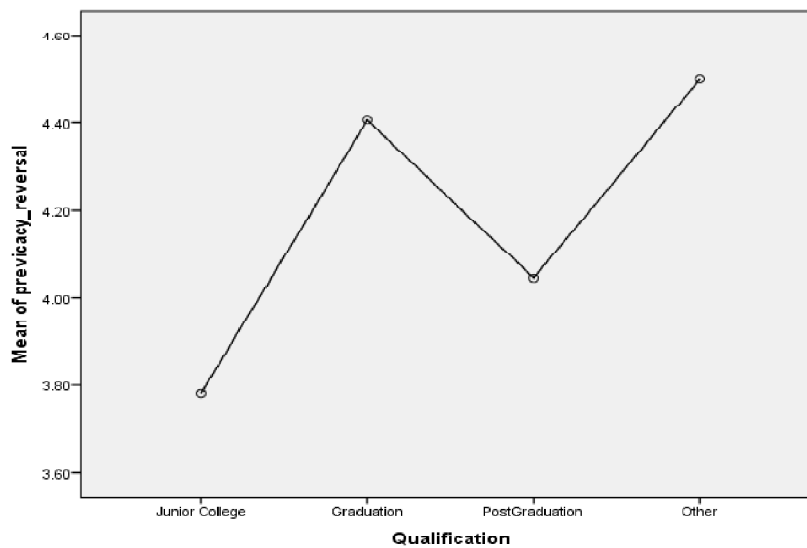

Figure 2: Privacy & Security w.r.t. Qualification

Table 4
Multiple Comparisons

Dependent Variable: privacy reversal Tukey HSD

(I) Qualification	(J) Qualification	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
Junior College	Graduation	-.62452	.35164	.288	-1.5352	.2862
	Post-Graduation	-.26389	.35975	.884	-1.1956	.6678
	Other	-.71875	.65352	.690	-2.4113	.9738

contd. table 4

(I) Qualification	(J) Qualification	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
Graduation	Junior College	.62452	.35164	.288	-.2862	1.5352
	Post-Graduation	.36063	.14181	.056	-.0066	.7279
	Other	-.09423	.56372	.998	-1.5542	1.3657
Post-Graduation	Junior College	.26389	.35975	.884	-.6678	1.1956
	Graduation	-.36063	.14181	.056	-.7279	.0066
	Other	-.45486	.56882	.855	-1.9280	1.0183
Other	Junior College	.71875	.65352	.690	-.9738	2.4113
	Graduation	.09423	.56372	.998	-1.3657	1.5542
	Post-Graduation	.45486	.56882	.855	-1.0183	1.9280

Null Hypothesis. Privacy & security is not dependent on age of the user.

Alternate Hypothesis. Privacy & security is dependent on age of the user.

Table 5
ANOVA Privacy& Security and Age

ANOVA

Privacy & Security

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.492	3	3.164	3.420	.018
Within Groups	193.354	209	.925		
Total	202.846	212			

Result. From table 5 the sig. value is.018 therefore the null hypothesis is failed to accept null hypothesis and alternate hypothesis is accepted. And relation between privacy & security and age is shown in figure 3

Table 6
Multiple Comparisons

Dependent Variable: privacy reversal Tukey HSD

(I) Age (years)	(J) Age (years)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
Up to 20	21 to 35	-.43231	.32812	.553	-1.2821	.4175
	35 to 55	.06944	.42413	.998	-1.0290	1.1679
	55 to 80	-2.01389*	.75191	.040	-3.9612	-.0666
21 to 35	Up to 20	.43231	.32812	.553	-.4175	1.2821
	35 to 55	.50175	.28629	.299	-.2397	1.2432
	55 to 80	-1.58158	.68369	.098	-3.3522	.1891

contd. table 6

(I) Age (years)	(J) Age (years)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
35 to 55	Up to 20	-.06944	.42413	.998	-1.1679	1.0290
	21 to 35	-.50175	.28629	.299	-1.2432	.2397
	55 to 80	-2.08333*	.73462	.026	-3.9859	-.1808
55 to 80	Up to 20	2.01389*	.75191	.040	.0666	3.9612
	21 to 35	1.58158	.68369	.098	-.1891	3.3522
	35 to 55	2.08333*	.73462	.026	.1808	3.9859

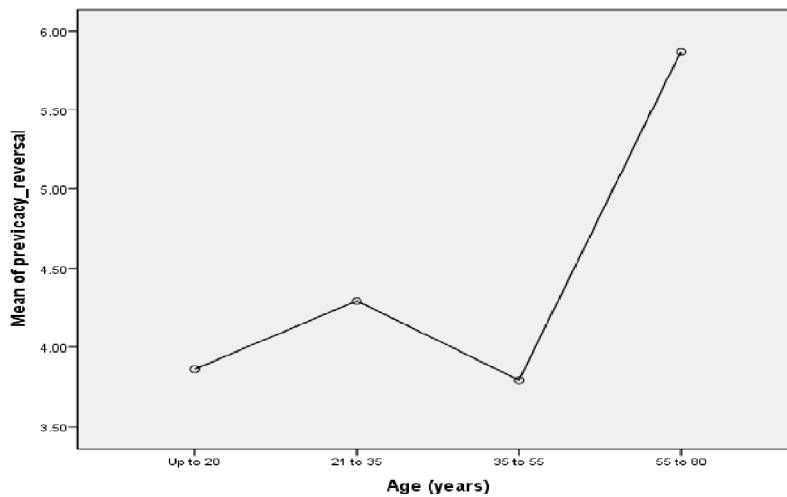*. The mean difference is significant at the 0.05 level.

Figure 3: Privacy & Security w.r.t. Age

Technology Ecosystem. As mentioned above this variable tells us about the comfort level of a user with the technology used. In this study using one-way ANOVA it has been found that occupation of an individual has a significant influence on technology ecosystem which is shown in following hypothesis and outputs:

Null Hypothesis. Technology ecosystem is not dependent on occupation of the users.

Alternate Hypothesis. Technology ecosystem of m-wallets is dependent on occupation of the users.

Table 7
ANOVA Technology Ecosystem and Occupation

ANOVA

Technology ecosystem

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	16.150	4	4.038	3.190	.014
Within Groups	263.293	208	1.266		
Total	279.443	212			

Result. From table 7 the sig. value is .014 therefore the null hypothesis is failed to accept and alternate hypothesis is accepted. And the relation between occupation and Technology ecosystem is shown in Figure 4.
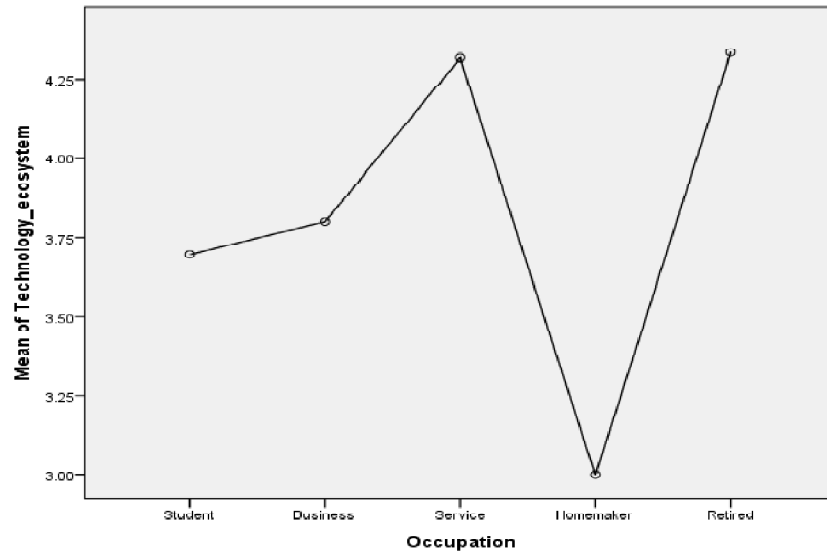

Figure 4: Technology ecosystem w.r.t Occupation

e-loyalty. It has been analysed and confirmed using one-way ANOVA that gender of an individual has significant influence on e-loyalty which has been reflected in hypothesis and the outputs:

Null hypothesis. e-loyalty is not dependent on gender of the m-wallet users.

Alternate Hypothesis. e-loyalty of users is dependent on gender of the m-wallet users.

Result. From table 8 the sig. value is .031 therefore the null hypothesis is failed to accept and the alternate hypothesis is accepted. And the relation between e-loyalty and gender can be seen in figure 5.
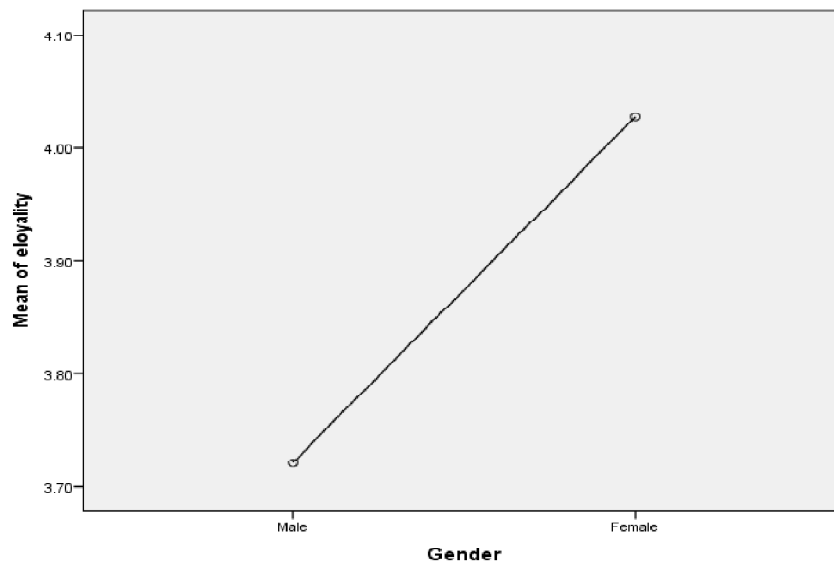

Figure 5: e-loyalty w.r.t. Gender

Table 8
Independent t-test E-loyalty and Gender

Independent t-test

E-Loyalty

	Sum of Squares	*Df*	*Mean Square*	*F*	*Sig.*
Between Groups	4.053	1	4.053	4.723	.031
Within Groups	181.055	211	.858		
Total	185.108	212			

CONCLUSION

The study started with literature review of research paper relating to various payment methods, then various factors effecting consumer's behavioural intention were shortlisted and a questionnaire was formed. The questionnaire was used to interview different respondents using online as well as offline channels. After successfully interviewing different respondent's various factors representing behavioural intentions related to use and adoption of m-wallets were analysed.

After analysing the factors, it is found that the behaviour of m-wallet users is influenced by user's demographic like age, income, occupation and qualification which can be used for designing user specific m-wallets. The study shows that privacy & security of m-wallets is dependent on occupation, age group and qualification of an individual. Since it's a new payment method therefore privacy & security has an important role in adoption of m-wallets in India. It is also found that the occupation of a user has significant role in understanding the technical part of m-wallets and the loyalty towards m-wallets is dependent on gender of a user in which it is found that female users are more loyal as compared to male users.

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