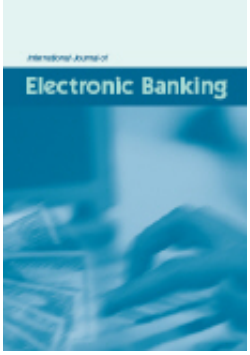

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What drives customer preference for mobile wallet payments - evidence from India

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What drives customer preference for mobile wallet payments – evidence from India

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Abstract: Against the backdrop of the rising adoption of mobile wallet payment usage in India and to address the call for more holistic research beyond adoption, this study examines factors influencing customer preference for a mobile wallet payment service. Based on the literature review, a model is suggested that exhibits a relationship between certain factors and dependent variables-attitude and intention to use wallet payment. This model is tested using structural equation modelling. Additionally, the study uses multinomial logistic regression to assess relationships between the various factors and customer preference. The study shows that intention to use influences preferences for wallet payment, perceived ease of use and security influence attitude, while promotional benefits and subjective norms influence attitude and intention to use wallet payments. Attitude mediates the relationship between perceived ease of use and perceived security with intention to use. However, perceived usefulness was not found to have a significant impact.

Keywords: mobile wallet payment; customer preference; promotional benefits; perceived ease of use; PEOU; subjective norm; perceived security; India.

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1 Introduction

According to a Statista (2021) report, the mobile wallet transactions in 2020 in India were valued at 36.5 trillion Indian rupees. This is forecast to increase by more than three times by 2024. This growth has been attributed to the increased smart-phone penetration as well as the increased competition in the market (http://www.statista.com). Another report, 'The Mobile Wallet Market – Forecast (2020–2025)' by Industry ARC (2021), states that the mobile wallet market would increase to $255 billion by 2025, growing at a CAGR of 15.2% between 2020 and 2025. This report attributes the growth to an increased use of technology in financial transactions and the rise of e-commerce platforms.

A 2018 report by the Government of India states that there are over fifteen mobile wallet service providers in the country of which fourteen are indigenous mobile wallet

companies. With non-cash transactions growing at 12.7%, the demand for mobile wallets is expected to build further (http://www.industryarc.com).

A replacement of the physical wallet, the mobile wallet allows users to conduct financial transactions with the help of a smart-phone. The rising dominance of mobile wallets in the economy has been recognised in research (Shin, 2009). In fact, the studies (Ramadan and Aita, 2018) report is the physical wallets are being replaced by mobile wallets as a means of payment (Sharma et al., 2018).

Stating that the customer adoption of mobile payments, including wallet payments, has been over-researched, Dahlberg et al. (2015) suggest research to encompass multiple facets in the context of wallet payments such as customer choice and preference. Against the backdrop of a large number of wallet payments in India and in response to Dahlberg et al.'s (2015) call for a more holistic research that goes beyond adoption, this study examines factors influencing customer preference for a wallet payment. In other words, the study attempts to determine factors that motivate a customer to prefer and select one wallet payment over competing brands.

Underpinned by the theories of reasoned action and of revealed preference, this study proposes that customer attitude influences intention to use, which in turn influences preferences. The study tests a model that examines the relationships between factors drawn from literature review and the dependent variables of attitude and intention to use, with the help of SEM. Further, with the aid of multinomial logit regression, the study examines the relationship between these factors and the primary dependent variable of this study – customer preference.

This study is unique in that it is perhaps the only study till date that addresses customer preference in mobile wallet context; the existing studies being in the area of customer adoption of mobile wallets.

By bringing forth the factors that impact customer preferences in mobile wallet payments, this study would have long term implications for mobile wallet payment service providers. With the knowledge of the factors that impact customer preferences, mobile wallet payment service providers may configure the performance of their services and the marketing communications thereof in a more competitive manner to build customer preference. This would ensure new customers as well as continuation of present customers.

1.1 Mobile wallets market in India

Mobile payment is defined as a type of payment conducted through mobile devices (Xin et al., 2015). India has been recognised as a dominant market internationally in terms of adoption of mobile wallet payments (Chawla and Joshi, 2019). The large-scale adoption of mobile wallets in the country has been attributed to the high level of mobile phone users in India (Singh and Rana, 2017) and the government's demonetisation initiative (Chawla and Joshi, 2019). Consequently, Indian customers are increasingly using mobile wallets for a wide variety of financial transactions (Singh and Rana, 2017).

Mobile wallet is witnessing a high consumer adoption rate (Singh and Rana, 2017). The S&P Global Marketing Intelligence (2020) report states that in 2019, the unified payment interface (UPI) handled some 11 billion transactions with UPI payments going beyond $373 billion in annualised value.

According to the '2020 India Mobile Payments Market Report', in 2019, mobile payments enabled by payment apps reached $287 billion increasing by 163%. Rising urbanisation, government support, RBI allowances as well as the emerging tech savvy consumer base which is increasingly embracing this technology are reasons attributed to the growth of the Indian mobile wallet market (Business Wire, 2017).

On the B2C and B2B sides, companies like Paytm, PhonePe, Pine Labs, Razorpay, BharatPe and others have dominated the digital payments sector, with businesses offering cash backs, awards and deals to entice customers. Furthermore, while contactless payment has become the new standard protocol, the recent epidemic has boosted demand for digital wallets. Pre-paid instruments (PPI), the NPCI's Universal Payment Interface (UPI), in addition to Aadhar and the advent of the BHIM app, on the other hand, have pushed financial inclusion and strengthened the country's payment acceptance infrastructure. Popular mobile payment services in India are overlaid by UPI which allows instant fund transfers between bank accounts by linking bank accounts with consumers' phone numbers.

With a number of players, the mobile wallet market in India is highly competitive. The Redseer Consulting report states the domestic wallet payment brand PayTM leads the competition with a 50% market share, followed by PhonePe, Google Pay and others with market shares of 30%, 10% and 10% respectively. In 2019, based on the number of UPI transactions completed, Google Pay and PhonePe were the dominant players. With over 7 billion transactions, Google Pay and PhonePe accounted for most of the UPI transactions in 2019 (Pillai et al., 2019). Yet another report the S&P Global Marketing Intelligence (2020) report states that PayTM has made greater progress in building a banking platform. A more recent article in the Business Insider reports Google Pay surpassed competitors such as PhonePe, Amazon Pay and the erstwhile leader, PayTM (Dash, 2020). Further, according to media reports, in recent times, WhatsApp, is popularising its payments feature.

2 Review of literature

Definitions of customer preference in literature indicate customer preference to be a construct that involves an evaluative judgement encompassing an attitude and a choice reflected in an explicit decision-making process (Lichtenstein and Slovic, 2006; Abdullah et al., 2013).

Schreft (2006) further adds that, there being multiple layers of decisions with the choice of payment instrument at the point of sale, customer choice may be determined by examining the features customers may want in their payment instrument. This may require incorporating elements of customer adoption in their choice-making process. Customer adoption of mobile payments has been found to be influenced by the elements of Roger's innovation diffusion theory, viz., relative advantage, compatibility, complexity, network externalities, perceived risks and impact of use situation (Mallat, 2007). Further, particular dimensions that have been found to impact intention to use mobile payments and mobile wallets include 'perceived usefulness' (PU) (Schierz et al., 2010; Thakur and Srivastava, 2014; Shaw, 2014; Mun et al., 2017; Chawla and Joshi, 2019), 'perceived ease of use' (PEOU) (Schierz et al., 2010; Thakur and Srivastava, 2014; Mun et al., 2017; Chawla and Joshi, 2019), 'subjective norm' (Schierz et al., 2010; Shaw, 2014; Thakur and Srivastava, 2014; Arbrahão de Sena et al., 2016) and 'security',

'trust' and 'privacy' (Sinha et al., 2019; Matemba and Li, 2018; Sharma et al., 2018; Chawla and Joshi, 2019).

Instantaneous transfer for money, extensive acceptance such that merchants often insist on payment through a digital wallet, ease of user interface, cash not required to be carried, are some of the motives for using digital wallets (Bagla and Sancheti, 2018). Shin and Lee (2014) find security, economic cost, and convenience to influence the use of mobile payments. Quick transaction time, multiple utility, convenience, coverage, user interface and promotional incentives have been identified as factors influencing decisions to suggest mobile wallet usage (Reddy et al., 2017). Continuation of use of mobile wallets depends on satisfaction, which was found to be influenced by factors such as trust, grievance redressal, PU, and perceived security (Kumar et al., 2018). Chen and Li (2017) conclude the continued usage of mobile payment services depends on the user satisfaction with such services.

Customer preferences for a mobile payment application have been found to be influenced by factors including ease of use, ease of starting the app, simpler application, speed of loading the website, speed of data transfer and security (Chmielarz and Luczak, 2016).

2.1 Underlying theories

The theory of reasoned action (TRA) (Fishbein and Ajzen, 1975) states that an individual's behaviour is influenced by their behavioural intention, which in turn is shaped by their attitude towards the behaviour as well as subjective norm (Silverman et al., 2016). Attitude refers to the beliefs an individual has upon the positive or negative evaluation of the outcomes of a behaviour (Mi et al., 2018). According to TRA, an individual's behavioural intention is shaped by his attitudes and beliefs, which are subjective perceptions of the consequences of the behaviour (Sam and Dhanya, 2012).

The theory of planned behaviour (TPB), like the TRA, considers attitude as formed upon careful deliberation of available information, which in turn impacts behaviour (Conner and Sparks, 2005). The TPB is usually adopted when relationships between attitudes, beliefs, cognition, and behaviours are explored in research (Chen, 2012). Specifically, a positive relationship has been found between attitude and intention to use in the context of technology (Schierz et al., 2010).

According to the revealed preference theory, if a consumer purchases a product, that product is considered their preference under the assumption that consumers will purchase what they prefer and will make consistent choices at constant incomes and prices (Kamaruddin and Meenchee, 2020). The revealed preference theory states that a customer's actual behaviour, such as chosen products, can be interpreted as the customer's preference (Demuynck and Hjertstrand, 2019). In other words, a customer's choice or actual purchase reveals preference as per the revealed preference theory.

Preference is a positive feeling and the extent to which an individual likes to consume (Sam and Dhanya, 2012). Buying intention is a forecast of consumer behaviour, which reflects a consumer's foreseeable behaviour in future buying decisions (Fandos and Flavian, 2006). Behavioural intention influences actual behaviour or actual usage (Kalz et al., 2009; Luarn and Lin, 2005; Wee et al., 2014).

Considering the TRA, TPB and revealed preference theories in conjunction, we see that customer evaluation impacts attitude, which in turn impacts behavioural intention,

which is manifested as purchase choice revealing customer preference. In other words, attitude and behavioural intention influence purchase choice, revealing customer preference, and hence we conclude, attitude and behavioural intention are antecedents to customer preferences. It is accordingly hypothesised that:

H1 Attitude towards current wallet payment impacts intention to use current wallet payment.

H2 Intention to use current wallet payment impacts preference towards current wallet payment.

Prior studies report factors affecting wallet usage as those that impact attitude and intention to use. Using TRA, TPB and revealed preference theories, it is argued that attitude and behavioural intention (here, intention to use) precede customer preference in the context of wallet payment. Accordingly, it is argued that factors reported to influence attitude and intention to use wallet payment would also in turn impact customer preference for wallet payment, through their impact on attitude and intention to use, both antecedents of customer preference.

3 Hypothesis formulation and research model: factors affecting customer preference in wallet payments

Based on literature, five constructs have been used for explaining customer attitude and intention to use in the context of mobile wallets. These constructs are discussed individually in this section.

3.1 Perceived usefulness

Defined by Davis (1989), PU is the extent "to which a person believes that using a particular system will enhance … performance" (Thakur and Srivastava, 2014; Shin, 2009; Sunny and George, 2018). Mun et al. (2017) identify PU as the extent to which mobile payments can aid consumers in their performance of daily activities, enhancing their task effectiveness and efficiency. Kumar et al. (2018) describe PU as a user's perceived benefit expected from mobile wallet usage. PU has been reported to have a positive effect on attitude towards a mobile wallet (Shin, 2009); it significantly impacts both attitude towards and intention to use mobile payments (Schierz et al., 2010); has a significant positive impact on intention to use mobile wallet (Shaw, 2014) and mobile payments (Thakur and Srivastava, 2014); and is also a significant and positive determinant of trust, intention and attitude, with trust influencing positively, both, attitude and intention (Chawla and Joshi, 2019). PU thereby has been found to influence positively the behavioural intention as well as individual's attitudes towards mobile wallet payments:

H3a PU positively impacts attitude towards current wallet payment.

H3b PU positively impacts intention to use current wallet payment.

Having established attitudes and intention to use as antecedents of preference, we assume:

H3c PU towards a mobile wallet payment positively impacts its customer preference.

3.2 Perceived ease of use

Davis (1989) defines PEOU as "the degree to which a person believes that using a particular system will be free of effort" (Sunny and George, 2018). PEOU is the belief that a system is mentally and physically effortless to use (Mun et al., 2017). PEOU has been reported to influence both attitude and intention to use for mobile payments (Schierz et al., 2010); it acts as a mediator to influence behavioural intention to use mobile payments (Thakur and Srivastava, 2014); positively and significantly impacts attitude, security, PU and trust (Chawla and Joshi, 2019). PEOU thereby has found to influence positively the intention to use as well as individual's attitudes towards mobile wallet payments.

H4a PEOU positively impacts attitude towards current wallet payment.

H4b PEOU positively impacts intention to use current wallet payment.

Having established attitudes and intention to use as antecedents of preference, we assume:

H4c PEOU towards a mobile wallet payment would impact its customer preference.

3.3 Perceived security

Perceived risk has been identified as consumer beliefs of impending negative consequences (Thakur and Srivastava, 2014) associated with financial, social or product associated uncertainties (Wu and Wang, 2005) during an online transaction (Madan and Yadav, 2016). In other words, perceived security is the degree to which transactions are believed to be safe.

Perceived risk is considered higher in non-traditional online shopping as compared to traditional physical purchase (Bobbitt and Dabholkar, 2001) and comprises of security, privacy and monetary risk (Thakur and Srivastava, 2014). Trust and security have been reported to significantly impact privacy and relative advantage (Matemba and Li, 2018; Sharma et al., 2018). Specifically, perceived security has been found to positive influence trust, attitude and intention to use in the context of wallet payments (Chawla and Joshi, 2019).

Perceived security thereby has been found to influence positively the intention to use as well as individual's attitudes towards mobile wallet payments.

H5a Perceived security positively impacts attitude towards current wallet payment.

H5b Perceived security positively impacts intention to use current wallet payment.

Having established attitudes and intention to use as antecedents of preference, we additionally assume:

H5c Perceived security towards a mobile wallet payment would impact its customer preference.

3.4 Promotional benefits

Promotional benefits include various monetary and non-monetary benefits such as rewards, discounts, loyalty points, free gifts provided with the use of mobile wallets which enrich the shopping experience of consumers (Madan and Yadav, 2016). Tavilla (2012) reports consumer motivation to use and higher interest in mobile wallets when promotional benefits such as discounts or other incentives are offered. Promotional benefits are associated with positive consumer attitudes and higher use intentions (Aydin and Burnaz, 2016). For instance, Doan (2014) found customers paying with their smart phones using both NFC and QR code techniques together with loyalty programs and promotions offered by a major food chain in Finland.

H6a Promotional benefits positively impacts attitude towards current wallet payment.

H6b Promotional benefits positively impacts intention to use current wallet payment.

H6c Promotional benefits offered by a mobile wallet payment would impact its customer preference.

3.5 Subjective norm

Also referred to as social influence, which Venkatesh et al. (2003), define as the extent to which an "individual perceives that it is important that others believe he or she should use of a new system" (Sunny and George, 2018), subjective norm includes the effect of opinions of a user's friends, relatives and superiors on behaviour (Chawla and Joshi, 2019). Subjective norm (influence of peer pressure) has been reported to influence attitude towards using mobile payments (Schierz et al., 2010). Shaw (2014) established that trust mediates the influence of informal learning on intention to use mobile wallet as well as that informal learning positively impacts intention to use mobile wallets. In the context of mobile payments, Thakur and Srivastava (2014) find subjective norm as an important predictor of intention to use. Mobile payment users may be perceived as technologically progressive by important others such as friends and colleagues (Thakur and Srivastava, 2014). Social influences are relevant and positive predictors of behavioural intention towards mobile payments (Arbrahão de Sena et al., 2016). Accordingly, it is assumed that:

H7a Subjective norm positively impacts attitude towards current wallet payment.

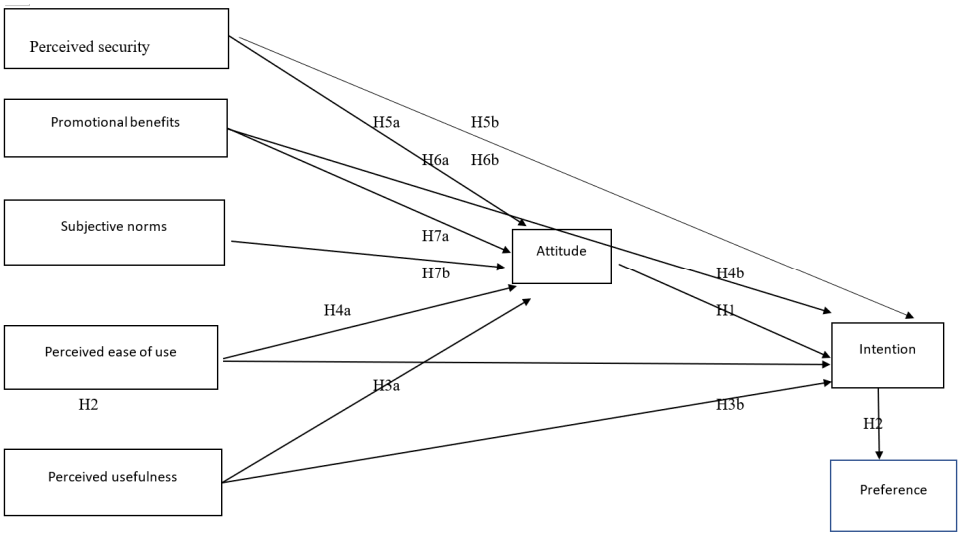
H7b Subjective norm positively impacts intention to use current wallet payment.

Having established attitudes and intention to use as antecedents of preference, we assume:

H7c Subjective norm towards a mobile wallet payment would impact its customer preference.

Figure 1 summarises our proposed model and hypotheses.

Figure 1 Hypothesised model of the study



Notes: The relationships indicated by parts 'c' of the hypothesis, viz., H3c, H4c, H5c, H6c and H7c are not shown in this figure with these relationships being assessed later, by the multinomial logit regression method.

4 Study design

A quantitative empirical study was undertaken with the aid of a structured questionnaire. The development of the questionnaire was based on earlier studies done. For the analysis, SEM and multinomial logistic regression were used.

A pilot study was undertaken wherein the initially designed questionnaire was administered to 50 respondents in two cities of India – Mumbai and Pune. The results of the pilot study, while with an acceptable reliability based on the Cronbach alpha score and acceptable validity indicated the need for rewording the questionnaire. The questionnaire was thereby reworded to ensure greater clarity for the respondents. The revised questionnaire was then administered to 600 respondents in India across ten locations that were geographically spread across the country. The tier 1 cities included Mumbai in the west, Kolkata in the east, Bangalore and Chennai in the south and Delhi in the north. The tier 2 cities included Pune in the west, Chandigarh in the north, Ranchi and Bhubaneshwar in the east and Vishakhapatnam in the south.

The demographics of the sample are shown in Table 1. As regards the parameters of age, education and experience, the final sample is fairly uneven. The respondents are young, college-educated, mostly male graduates and postgraduates, with a mix of respondents from major cities with almost equal proportion of respondents being married or single.

As a result, the sample employed in this study is representative of the entire mobile service user community. For statistical analysis, AMOS and SPSS were employed. For the structural equation model, AMOS for Windows (version 16) seemed to offer decent, repeatable results. With the help of AMOS covariance structures were analysed and

modelled in a causal relationship. This helped us in building the theory and testing the model. Due to its analytical capability AMOS is most preferred (Arbuckle, 2005).

Table 1 Demographic details

Demographics	*Percentage*
Gender	
Male	78%
Female	22%
Age group	
<20 years	0.5%
20–25 years	32.16%
26–31 years	31.33%
32–37 years	20.5%
37–42 years	8.5%
43–48 years	4%
49–53 years	1.5%
54–59 years	1%
>59 years	0.5%
Profession	
Salaried individual in private company	40.8%
Professional	16.5%
Student	15.3%
Salaried individual in government service	14.3%
Entrepreneur	5.6%
Homemaker	5.8%
Others	1.5%
Income	
Up to Rs.2.5 lakhs	30%
2.5 lakhs to 5 lakhs	27.16%
5 lakhs to 7.5 lakhs	18.16%
7.5 lakhs to 10 lakhs	12.6%
10 lakhs to 12.5 lakhs	5.1%
12.5 lakhs to 15 lakhs	2.1%
Above 15 lakhs	4.6%
Education	
Up to 10th grade	3%
Up to 12th grade	10.6%
Graduate	42.16%
Postgraduate	41.5%
Doctorate	2.3%
Other professional degree	0.3%

Table 1 Demographic details (continued)

Demographics	*Percentage*
Location	
Chennai	7.6%
Mumbai	16.6%
Delhi	16.6%
Kolkata	16.6%
Bengaluru	9%
Pune	8.3%
Ranchi	2.3%
Chandigarh	8.3%
Vizag	6%
Bhubaneshwar	8.3%
Marital status	
Married	57.83%
Single	42.16%

4.1 Development of measures

The scales for the constructs used were developed from existing scales, with suitable adjustments to the context of mobile payment. The items of the attitude scale were taken from Oh et al. (2013), Van der Heijden (2003) and Yang and Yoo (2004). The items on the intention scale, PEOU and PU were adapted from Venkatesh et al. (2003). The security scale was taken from Matemba and Li (2018). The items of the subjective norm scale were taken from Schierz et al. (2010). Measurement of the items were on a seven-point Likert-type scale ranging from 'strongly disagree' to 'strongly agree'

4.2 Data analysis

4.2.1 Measurement instrument

SPSS 15 was used to understand the extent of reliability as well as to establish the validity of the measurement instruments. Cronbach's alpha was used to measure the reliability of the survey instrument and also measure internal consistency. Using Cronbach's (1971) alpha, each construct was put to test for assessing their reliability and also assessing the validity of their content. The variables which were used in the study came from the study of existing literature and the Cronbach's alpha showed that the validity of their content was strong.

Cronbach's alpha was 0.90 which indicated a comfortably acceptable level for reliability and one-dimensionality (Hair et al., 2009). The discriminant validity of the developed constructs was assessed using the HTMT method. This method has high sensitivity and specificity. HTMT scores of less than 0.9 indicate acceptable discriminant validity for the constructs considered in a study (Henseler et al., 2015). Accordingly, as per Table 2, the constructs in this study displayed acceptable discriminant validity.

Table 2 Discriminant validity

Pairs of constructs	*HTMT score*
PEOU ↔ perceived security	0.84
PEOU ↔ intention	0.76
PEOU ↔ promotional benefit	0.74
PEOU ↔ subjective norm	0.80
PEOU ↔ attitude	0.80
Perceived security ↔ intention	0.73
Perceived security ↔ attitude	0.78
Perceived security ↔ promotional benefit	0.74
Perceived security ↔ subjective norm	0.83
Perceived usefulness ↔ intention	0.70
PEOU ↔ attitude	0.74
PEOU ↔ promotional benefit	0.68
PEOU ↔ social norm	0.76
Ease of use ↔ perception of use	0.90
Perceived usefulness ↔ perception of security	0.78
Attitude ↔ intention to purchase	0.88
Intention to use ↔ promotional benefit	0.77
Intention to use ↔ social norm	0.76
Attitude ↔ social norm	0.77
Subjective norm ↔ promotional benefit	0.78
Promotional benefit ↔ attitude to purchase	0.78

4.2.2 Structural model

Structural equation model was used to analyse the data. With the help of this technique a theoretical model is constructed which is then evaluated on an empirical basis to see whether the data fits the model. Estimates derived out of this exercise are shown in Table 3. The variability in the model is well explained as is evident by the various indices of goodness of fit (AGFI = 0.85, CFI = 0.953 and the TLI = 0.95). Further, the fit is evident by looking at the value of RMSEA which is 0.06. This is as per the benchmark set by Joreskog and Sorbom (1996), who suggest that values of 0.06 or greater show a close fit. Yet another test statistic attesting the same is the normed chi-square value (chi-square value appropriately penalised by degrees of freedom). This value was 2.795, which is below 5, the upper cut-off as given by Bagozzi and Yi (1988). All the statistics pointed towards the fact that the model overall is a good fit.

4.2.3 Possible mediating effects and extended model

The path coefficients as given by the empirical model helped assess the relationships between the constructs. The same path coefficients pointed towards certain mediating

relationships between the constructs which were not anticipated earlier by the researchers. Based on the results, the researchers found that the construct of attitude mediates between the constructs. The study extends the proposed research model to include the mediating effects of attitude between perceived security and intentions and the mediating effects of attitude between promotional benefits and intentions and the direct effect of intention on preference.

Table 3 Fit indices for the measurement model and the structural model

Fit statistics	*Structural model*	*Recommended value*
Chi-square/df	1,601.471 df = 573 P = 0.000	
Normed chi-square	2.795	<5 (Bagozzi and Yi, 1988)
p-value	0.000	<0.05 (Bentler, 1990)
Goodness-of-fit index (GFI)	0.90	>0.9 (Bagozzi and Yi, 1988)
Adjusted goodness-of-fit index (AGFI)	0.85	>0.8 (Etezadi-Amoli and Farhoomand, 1996)
Root mean square error approximation (RMSEA)	0.06	Equal to or more than 0.06 (Joreskog and Sorbom, 1996)
Tucker-Lewis index (TLI)	0.95	Approaches 1 (Byrne, 2001)

5 Results

5.1 Structural paths and hypothesis tests

As per the hypothesis, the causalities between constructs were seen in the form of path coefficients. The structural relationships as envisaged in the hypothesis were thus tested. The researchers had developed a total of 12 hypotheses out of which eight were accepted while the researchers failed to accept the remaining four. The results are reported and depicted in Table 4 and in Figure 2. Since the goodness-of-fit statistics are satisfactory and acceptable, the model fit is acceptable, the hypothesised model was overall supported by the derived empirical output illustrating the emerging role of promotional benefits in mobile wallet services.

Critical ratio or CR values indicate the significance of relationship and values greater than 1.96 are significant at 5% level while values greater than 2.32 are significant at 1% level (Arbuckle, 2005). The result indicates that attitude influences intention, thereby supporting H1. A significant critical ratio (CR = 2.744) provided support for the specified relationship between PEOU and attitude. The output suggests that higher PEOU creates a favourable attitude towards mobile wallets. This thereby led to the acceptance of H4a. However, PEOU was not found to have a direct significant relationship with intention to use mobile wallet services. Promotional benefits were found to be important determinants of attitude (CR = 6.864) and user intention for mobile wallet services (CR = 3.234), by which, H6a and H6b were thus found as supported.

The results further demonstrated that PU did not have a statistically significant relationship with either attitude or intention, leading to the rejection of H3a and H3b.

Perceived security was found to have a significant relationship with attitude towards mobile wallets thereby leading to the acceptance of H5a. However, perceived security was not found to have a direct positive relationship with intention.

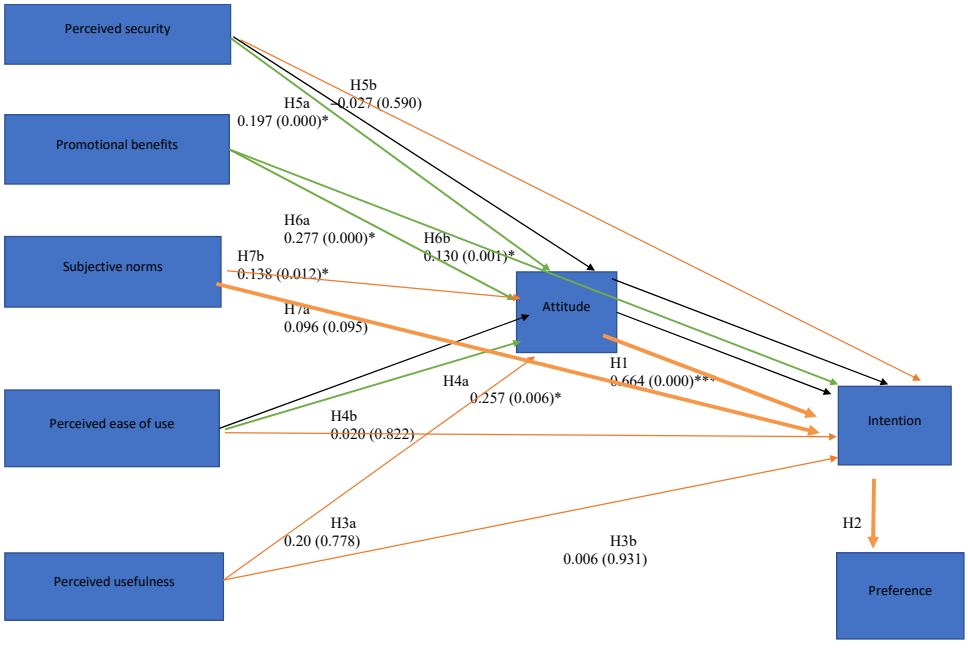
Subjective norm was found to have a significant relationship with both attitude and intention, leading to the acceptance of H7a and H7b.

While both PEOU and perceived security were not found to have a significant relationship with intention, since both PEOU and perceived security were found to impact attitude and attitude was found to impact intention, it was seen that PEOU and perceived security impact intention through the mediating effect of attitude.

Table 4 Summary of hypothesis tests

Hypothesis		*Estimate*	*SE*	*CR*	*P-value*	*Support*
H1	Attitude → intention	0.664	0.058	11.385	***	Yes
H3a	Perceived usefulness → attitude	0.020	0.072	0.282	0.778	No
H3b	Perceived usefulness → intention	0.006	0.067	0.086	0.931	No
H4a	PEOU → attitude	0.257	0.094	2.744	0.006	Yes
H4b	PEOU → intention	0.020	0.090	0.225	0.822	No
H5a	Perceived security → attitude	0.197	0.051	3.823	***	Yes
H5b	Perceived security → intention	–0.027	0.049	–0.539	0.590	No
H6a	Promotional benefits → attitude	0.277	0.040	6.864	***	Yes
H6b	Promotional benefits → intention	0.130	0.040	3.234	0.001	Yes
H7a	Subjective norm → attitude	0.096	0.058	1.669	0.095	Yes
H7b	Subjective norm → intention	0.138	0.055	2.510	0.012	Yes

Figure 2 Model with the results (see online version for colours)



5.2 Multinomial logit model

Multinomial logistic regression is a classification method where the dependent variable can have more than two possible discrete outcomes. It is specifically used when the dependent categories are unordered. The conditional probability of choosing any category is given by the multinomial logistic model (Kamakura, 1989).

A look at the multinomial distribution literature (Andersen, 2005; Sugiyama, 2016) shows that binary choice models can be generalised to multiple choice models. When a consumer or the individual has to make a choice among more than two alternatives and the consumer chooses the one that gives him or her maximum satisfaction (Greene, 2012). The dependent variable (preference) would comprise of ordered/ranked choices or unordered/unranked choices. When it comes to unordered choices as the dependent variable, multinomial logistic regression comes in handy. In this study, the choice of a mobile wallet is unordered and hence a multinomial logit regression was done to understand the factors or the independent variables determining these unordered choices. However, before the method is employed, an a priori requirement is that the outcome/choice categories should have the property of independence of irrelevant alternatives (Hausman, 1984). This means that excluding certain categories should not significantly change the impact of regressors on the remaining dependent variable.

The dependent variable of the multinomial logit model presented in this paper is preference for a particular mobile wallet. The log likelihood results showed that the independent variable intention to purchase is statistically significant in making a choice for a mobile wallet. This significance remained even when the categories were excluded stepwise, thus providing the independence of irrelevant alternatives property. The results as tabulated in Table 5 show a significant relationship between intention and preference.

Table 5 Likelihood ratio tests

Effect	*Model fitting criteria*	*Likelihood ratio tests*		
	–2 log likelihood of reduced model	*Chi-square*	*df*	*Sig.*
Intercept	1,238.364	31.093	5	0.000
Perceived usefulness	1,217.029	9.758	5	0.082
Perceived ease of use	1,209.381	2.110	5	0.834
Perceived security	1,213.062	5.791	5	0.327
Subjective norm	1,216.912	9.641	5	0.086
Promotional benefits	1,218.064	10.794	5	0.056
Attitude	1,213.601	6.330	5	0.275
Intention	1,218.374	11.103	5	0.049

From the likelihood ratio tests, intention and promotional benefits are the only two variables that have a direct impact on preference, thereby supporting H2 and H6c respectively.

From the SEM, it can be seen that subjective norm impacts intention (Table 4). In turn, intention impacts preference as per the multinomial logit regression (Table 5). Considering the results of the two techniques – SEM and multinomial logit regression – together, we find subjective norm impacts intention, which, in turn impacts preference. Consequently, subjective norm impacts preference. Hypothesis H7c is thus supported.

Likewise, PEOU and perceived security impact preference, supporting H4c and H5c respectively.

In conclusion, the variables that impact preference for a particular wallet payment service include promotional benefits, subjective norm, PEOU and perceived security. The only variable not found to impact customer preference for wallet payment is PU, leading to the rejection of H3c.

6 Discussion and implications

Through their impact on intention, promotional benefits, subjective norm, PEOU and perceived security impact customer preference towards a particular wallet payment service. However, PU was not found to influence customer preference.

That promotional benefits influence customer attitudes and intention to use positively is supported by Aydin and Burnaz (2016). Madan and Yadav (2016) too found promotional benefits influencing behavioural intentions towards wallet payments in India. In fact, the BCG Digital Payments Report, 2020, brings forth that wallet payment companies in India offer substantial deals, discounts and offers to encourage customers. These offers in India tend to encourage customer usage of e-wallet as a primary mode of payment and in turn increase their popularity (Bansal and Joshi, 2014). Zhao et al. (2019) found that promotional incentives such as cash backs and discounts significantly impacted the adoption of mobile payment. This study found promotional benefits as a significant influencer of customer preference for wallet payments. Wallet payment service providers must incorporate attractive promotional schemes to attract customers and motivate them to use their wallet payment services.

Surprisingly, contrary to prior studies (Shin, 2009; Schierz et al., 2010; Chawla and Joshi, 2019), PU was not found to impact attitude towards wallet payment. Also, contrary to Schierz et al. (2010), Thakur and Srivastava (2014) and Shaw (2014), PU was not found to influence intention to use wallet payment. This led to the conclusion that PU does not impact customer preference towards wallet payment, which is an unexpected result, especially when considering that PU refers to the users' perception of the expected benefit of wallet payment use (Kumar et al., 2018). Further, Davis (1989) finds that in terms of usage of technology, PEOU may be an antecedent to PU rather than the two being direct, parallel determinants of usage. Joo et al. (2016) also report that PEOU predicts PU. Further, for online shopping, Katawetawaraks and Wang (2011) reported PU to have lower importance in affecting attitude, while PEOU was a determinable requirement (Bendary and Al-Sahouly, 2018). Some studies realised that the more easily the user is able to use the technology, the higher is its usefulness – hence, there is a direct effect of PEOU on usefulness (Bendary and Al-Sahouly, 2018). So customers who find wallet payments easy to use may find them useful.

Additionally, results testify that PEOU has a significant positive impact on attitude, consistent with the findings of Schierz et al. (2010) and Chawla and Joshi (2019). On the other hand, contradicting studies (Ramayah, 2006; Suki et al., 2011; Almahamid et al., 2010; Kanchanatanee et al., 2014), PEOU was not found to impact intention to use wallet payment. However, while Ramayah (2006) studied the relationship in the context of online library, Almahamid et al. (2010), Suki et al. (2011) and Kanchanatanee et al. (2014) reported this relationship in the contexts of e-government, 3G mobile services and e-marketing, respectively. Nevertheless, while PEOU was not found to impact intentions

directly, it was found to impact attitude, which, was found to impact intentions. Thereby, it was deduced that PEOU impacts intention through its influence on attitude. Furthermore, with intentions found to influence preference, it was concluded that PEOU influences preference of wallet payment. This means wallet payment service providers should ensure that their payment user interface is effortless and easy to use.

Consistent with Schierz et al. (2010) and Shaw (2014), subjective norm was found to positively influence attitude and intention to use wallet payments. With intentions affecting preferences, subjective norm was found to impact preference towards wallet payment. Verma et al. (2020) also reported subjective norm as an important predictor of mobile payment intentions. This was true especially in the case of India, where, after demonetisation, users may have relied heavily on other individuals' views to help them decide on online transactions (Verma et al., 2020). Zhu et al. (2017) reported subjective norm as an important predictor of intention for continued usage of wallet payment. However, in the case of Generation Y respondents, subjective norm was not found to impact intention to use e-wallets (Trivedi, 2016). The size of this age group was very small in the sample of this study (<0.5%). It is possible that younger consumers do not seek validation from others to use technology products due to their confidence with digital technology. Those opinions of others influence preference for wallet payment services indicates that wallet payment service providers should promote favourable word of mouth publicity about their wallet payment brand.

Trust has been recognised as a determinant of continuous intention in the context of wallet payment. In fact, security and privacy concerns can impede trust and satisfaction thereby impacting the usage of mobile wallet (Gao et al., 2015). Consumers tend to infer perceived security through the interface information. Ye et al. (2008) proved perceived security has an impact on user's switching behaviour. Consistent with Chawla and Joshi (2019), this study found perceived security to positively influence attitude towards wallet payment. However, unlike Chawla and Joshi (2019) perceived security was not found to impact intentions to use wallet payment. Nevertheless, since attitude was found to impact intentions, it was deduced that the perceived security impacts intentions via the mediating effect of attitude. Further, with intentions affecting preferences, perceived security appears to be an important determinant of wallet payment preferences. Wallet payment service providers should ensure the perception of higher security in their brand of wallet payments.

7 Conclusions

Mobile wallets have become an important mode of payment in India. With a large number of players, customers in India have a wide choice of mobile wallets. Against this backdrop, this study has found factors shaping customer preference towards a particular mobile wallet. These factors are promotional benefits, PEOU, subjective norm, and perceived security. The only factor not found to impact wallet payment preference was PU. By elucidating the factors that impact wallet payment preferences, this study guides wallet payment service providers on building customer preference towards their brand of wallet payment.

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