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Preferences of Housewives to Use Mobile Payment Apps for Viksit Bharat: A Conjoint Analysis

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Abstract:

The main aim of this study is to understand Housewives' preferences towards the attributes of the use of mobile payment Apps and to examine the relative importance of the attributes of the mobile payment apps considered by housewives. This research study has used five attributes of mobile payment apps, viz., different mobile payment apps, features, rewards, user-friendliness, and security. The researchers have attempted to discover which of these traits are most and least favored by prospective participants. 392 housewives were polled to gather the necessary primary data. Data was collected using availability and purposive sampling strategies. A well-structured questionnaire was developed, and 25 conjoint cards were made and sent to participants.also examined the relative importance of each choice based on numerous attributes.The results of the conjoint analysis demonstrate that the attributes of the mobile payment apps are not significantly different from each other. ($p>0.05$, $F=1.225$).

Keywords: *Mobile Payment Apps, conjoint analysis, preference, Online Payment, Housewives.*

Introduction:

The modern society of today is shaped by the rapid advancement of technology and the increasing mobility of smartphone use (Malik et al., 2019). More people now utilize mobile devices in their daily lives than any other type of gadget (Tarihi et al., 2017). Mobile devices are also

innovating in terms of payment methods.(Wang et al., 2016). Before making use of mobile payment apps for transactions, users must link their bank account to the mobile payment account (Wang et al., 2016). (Michael Humbani & Wiese, 2019)has emphasized that, in recent times, Payment by mobile is the best technical breakthrough that has occurred not only in underdeveloped but also in wealthy countries. The use of mobile devices to initiate, authorize, and approve a business transaction is known as mobile payment (Fan et al., 2018). In the view of (Shin et al., 2014), Mobile payments are receiving greater attention from users of smartphones as their numbers have grown quickly. (Franque et al., 2021)revealed that using mobile devices—mostly smartphones—to pay bills or purchase products and services is known as mobile payment. (Y. Wang et al., 2019) noted that mobile payment applications have gained recognition as a style for their creative payment methods due to the rising use of smartphones and e-commerce. Mobile apps are highly capable mobile operating systems that operate on smartphones (Tang, 2019). (Arora et al., 2020)stated that e-wallets, games, entertainment, pay, shopping, and other activities are now all done through mobile apps. In numerous areas, mobile payments have grown in popularity. (Wang et al., 2016) Mobile payment apps are thought to be used by an increasing number of people. Utilizing mobile payment services is prevalent in 61% of developing nations globally (M. Humbani & Wiese, 2019). A study tracking and estimation by eMarketer indicates that 34.9% of retail payments in 2018 were made with a mobile device. Popular digital payment apps in India include Paytm, GooglePay, BHIM app, PhonePay, and Amazon Pay(Michael Humbani & Wiese, 2019). (Gupta, 2020)emphasized that the goal of the Indian government is to create a cashless, faceless, and paperless economy. Making payments electronically is becoming more popular because of the new payment technique known as mobile payment (Huang, 2017).

Housewives are generally involved in buying daily provisions like vegetables and groceries required on a regular basis. Therefore, they constitute a major element of a country's economy. With this in mind, it becomes necessary to investigate the preferences of housewives to utilize mobile payment apps for the future Bharat 2047through a Conjoint Analysis technique in Maharashtra state's second capital, i.e., Nagpur so as to gain some understanding of how housewives are perceiving these apps.

The current research activity seeks to address two issues, which are summarized in the form of the following research questions (RQs):

RQ:1 Which attributes of mobile payment apps are preferred most by housewives?

RQ:2 What is the relative importance of each option, given the varied characteristics of mobile payment apps used by housewives?

The remaining portions of this work are organized as follows: Part 2 includes a literature review. Section 3 describes the research approach employed for this study. Section 4 presents the

findings, whereas Section 5 offers the conclusions.

Literature Review:

This study (Schierz, P. G., Schilke, O., & Wirtz, B. W., 2010) focuses on the factors influencing consumers' acceptance of mobile payment systems. The impacts of compatibility, individual mobility, and subjective norms are particularly well supported by the research. This study has a number of marketing-related implications for managers looking to boost consumer intention to utilise mobile payment methods. According to Goneos-Malka, A., Strasheim, A., & Grobler A. F., 2014), using various phone device features and having access to them can be a useful segmentation strategy.This study, based on 330 students, created segments with cluster analysis to extract data from mobile phone usage patterns. Four clusters were identified based on the results: Mobilarti, Conventionalists, Technoisseurs, and Connectors. In the views of (Kumar, V. R., Lall, A., & Mane, T.2017), The key determinants influence management students' decisions to use mobile banking. The study employs two constructs from the technology adoption model before expanding it to incorporate two more constructs.According to the findings, perceived usefulness and convenience of usage, social influence, and trust tendencies all influence behavioral intentions to use mobile banking services.(Wu, J., Liu, L., & Huang, L., 2017)looks at how consumers' acceptance of WeChat payments is affected over time by pleasant emotions. The findings show that users' acceptance intentions are related to perceived risk, usefulness, and positive emotion. Positive emotion has a significant negative impact on perceived danger while increasing perceived benefit. Furthermore, perceived usefulness greatly lowers users' perception of risk. According to this study, a more full understanding of how to raise the acceptance rate of an innovative mobile payment may be acquired by evaluating the impact of positive emotions and the moderating effect of diffusion stages in m-payment acceptance. (Liao, S. H., & Ho, C. H., 2021)This study investigates the behaviors of Taiwanese mobile payment and app users. This study creates a data mining approach using a relational database, including clustering analysis and association rules. This study reveals that mobile payment is not only an important mobile application platform for online businesses, but it also provides payment services. Mobile payment apps play a vital role in online shopping(Linge et al., 2022).

Conceptual Framework:

The primary goal of this study is to determine housewives' preferences for the attributes of several mobile payment apps. This study seeks to discover the most and least desired qualities of mobile payment app users by calculating their preference scores and attribute choices. The null hypothesis formulated for this study is:

H_0: All the attributes of mobile payment apps related to uses are not significantly different

The various characteristics of mobile payment apps and their functions were determined

based on talks with housewives. This studyidentified five attributes for including the various mobile payment apps, the features, rewards, user-friendliness, and security. Theresearch model created for this study is shown in Figure 1.

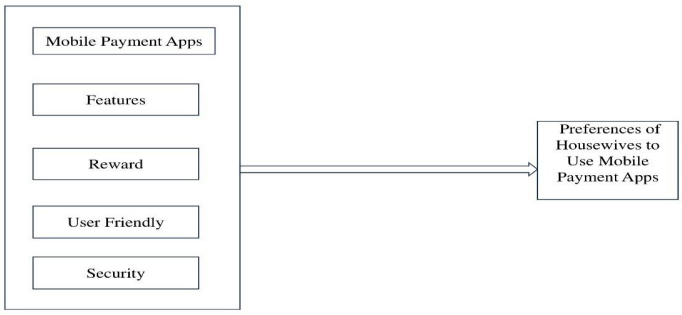

Figure 1: Research Model

Methodology:

Conjoint Analysis: Attribute and Level

The conjoint analysis technique is used to establish the relative importance of mobile payment app attributes in terms of their use by housewives in Nagpur City. Conjoint analysis is a statistical tool for measuring the importance of a product's characteristics to its users. It's a method for analyzing customer preferences. It is also an efficient way to forecast and determine customer responses to new product features and other things altogether. (Yilmaz, N. K., & Hazar, H. B., 2018). The choice-based conjoint analysis is utilized to evaluate the housewife's preferences for the use of the various aspects of mobile payment apps (Kakde, 2022).

The five attributes are chosenuses of mobile payment apps, viz., Different Mobile payment Apps, Features, rewards, user-friendliness, and Security.All of the attributes have a variety of choices. The researchers discovered five choicesunder the 'Different Mobile Payment Apps' attribute, viz. 'BHIM App, ' 'Google Pay, ' 'Phone Pay, ' 'Paytm, ' and 'Amazon Pay. ' Under the 'Features' attribute, three choices, viz, 'Very Good', 'Good, ' and 'Normal, ' were identified. Under the third attribute, 'Reward', the researchers have considered three choices, viz 'Very Good', 'Good', and 'Normal'. Under the fourth attribute, 'User Friendly', two choices were identified, viz; 'Yes', and 'NO'. The three levels are 'Low', 'Medium', and 'High'. choices were considered under the fifth attribute, 'Security'.

Table: 1 Conjoint Layout

Attributes	Apps	Features	Reward	User Friendly	Security
Choices	BHIM App	Very Good	Very Good	Yes	Low
	Google Pay	Good	Good	No	Medium
	Phone Pay	Normal	Normal		High
	Paytm				
	Amazon Pay				

In the above conjoint layout (Table 1), whatever attributes and choices existare all evaluated.By using SPSS software,25 profiles were created(Table:2). The housewives using mobile payment apps were asked to rate each profile on a 1 to 10 scale where '1=Least Preferred' to '10=Most Preferred' profile.

Table: 2 Conjoint profiles

Card ID	Apps	Features	Reward	User-friendly	Security
1	Paytm	Good	Good	Yes	Medium
2	Google_Pay	Good	Very Good	Yes	Medium
3	Phone _Pay	Normal	Very Good	Yes	Low
4	BHIM	Very Good	Good	No	Medium
5	Google_Pay	Good	Good	Yes	Low
6	Google_Pay	Very Good	Good	No	Low
7	Phone _Pay	Very Good	Good	Yes	High
8	BHIM	Normal	Good	Yes	Medium
9	Phone _Pay	Good	Good	No	Medium
10	Google_Pay	Very Good	Very Good	Yes	Medium
11	Paytm	Very Good	Normal	No	Low
12	Amazon Pay	Very Good	Good	Yes	High
13	Paytm	Good	Very Good	Yes	High
14	Amazon Pay	Very Good	Very Good	Yes	Low
15	Amazon Pay	Good	Good	No	Low
16	BHIM	Good	Very Good	No	High
17	Phone _Pay	Good	Very Good	No	Low
18	Amazon Pay	Good	Normal	Yes	Medium
19	BHIM	Very Good	Very Good	Yes	Low
20	Google_Pay	Normal	Normal	No	High
21	Paytm	Normal	Good	Yes	Low
22	BHIM	Good	Normal	Yes	Low
23	Paytm	Very Good	Very Good	No	Medium
24	Phone _Pay	Very Good	Normal	Yes	Medium
25	Amazon Pay	Normal	Very Good	No	Medium

Method:

Sampling:

The core data for this study was collected through a survey of 392 housewives in Nagpur City, Maharashtra, India. The final respondents were chosen using a combination of purposive and availability sampling strategies.

Measure:

This study's primary data was gathered utilizing a well-structured questionnaire. After integrating all of the attributes and choices, there are (5X3X3X2X3), or 270, profiles. This study employed an orthogonal design to produce 25 conjoint cards. The questionnaire was subsequently circulated to housewives who use mobile payment apps. In addition to these profiles, the questionnaire covered the respondents' socio-demographic information. The sample characteristics are shown in Table 3.

Data Collection:

The data was collected in July and August 2024. All the questions were framed into Google Forms, and the link to the Google form was sent on the personal WhatsApp and WhatsApp group of the respondents (Nagpur City housewives). A reminder was sent to the respondents and motivate them to fill the survey form, and timely follow-up was taken.

Results:

Descriptive statistics:

This study is undertaken to examine the preferencesof housewives towards various attributes of uses of mobile payment apps and to determine their relative importance to them in the process of using online payment. Table 3 shows the characteristics of the persons included in the sample. The age of respondents is 20 to 30 years 15%, 30 to 40 years 49%, 40 to 50 years 29%, and above 50 years 7%. The sample constitutes the education of the respondents:20% Undergraduate, 43% graduate, 25% postgraduate, and 12% others. The family income (per month) of the respondents was:Rs. 5000 to 25000 is 32%, Rs. 25000 to 50000 is 33%, Rs. 50000 to 75000 is 22%, Rs. 75000 to 100000 is 9%, and above Rs. 100000 is 4%.

Table 3: Sample characteristics

Characteristic	Choices	No. of Respondents	%
Age (In Years)	20 to 30	58	15
	30 to 40	193	49
	40 to 50	112	29
	Above 50	29	7

Education	Undergraduate	78	20
	Graduate	167	43
	Post Graduate	99	25
	Other	48	12
Family Income (Per Month Rs.)	5000 to 25000	125	32
	25000 to 50000	128	33
	50000 to 75000	87	22
	75000 to 100000	35	9
	Above 100000	17	4

N=392

The hypothesis is that all the attributes of the mobile payment apps related to their use are not significantly different. This hypothesis is tested by performing conjoint analysis at a .05 level of significance. The results indicate that the attributes of mobile payment apps related to their use are not significantly different from each other (p>.05, F=1.225) (Table 4).

Table 4: Conjoint Analysis

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.528	11	.684	1.225	.359b
	Residual	7.262	13	.559		
	Total	14.790	24			

The R^2 for the model shows that the preferences for the attributes of the mobile payment apps related to their use independently account for 50.9% of the variance in different choices (Table5). It indicates that the housewives are normally clear about the attributes of the mobile payment apps related to their use.

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.713a	.509	.094	.74742

Table 6: Coefficient Table

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		β	Std. Error	Beta		
	(Constant)	8.130	.441		18.448	.000
	Apps_GooglePay	-.371	.478	-.193	-.776	.452
	Apps_PhonePay	-.177	.526	-.084	-.336	.742
	Apps_Paytm	.000	.472	.000	-.001	1.000
	Apps_AmazonPay	.400	.473	.208	.846	.413
	Features_Good	-.377	.351	-.243	-1.076	.302
	Features_Normal	-.502	.425	-.261	-1.180	.259
	Reward_Good	-.556	.361	-.337	-1.538	.148
	Reward_Normal	-.723	.456	-.376	-1.587	.136
	User_Friendly.No	-.367	.317	-.234	-1.158	.268
	Security_Medium	.142	.318	.090	.446	.663
	Security_High	.191	.113	.392	1.687	.115
a. Dependent Variable: Rating						

The part-worth utility table (Table 7) is useful to compare the part-worth utilities of the choices in each attribute. After comparing the utilities of the choices in the first attribute, “Mobile Payment Apps,” it is found that Amazon Pay has the highest utility to housewives. BHIM app and Paytm are the second most preferred choices because it has equal utility for housewives. Followed by phone pay. Google Pay is least preferred by the housewives.As far as the “Features” of the app is concerned, Very Good has the highest utility, followed by Goodand Normal for housewives. In terms of “Reward” from online payment apps, Very Good has the highest utility, followed by Good and Normal for housewives.As far as “User Friendly” appsare concerned, “Yes” has more utility than “No” for housewives.Housewives were found to prefer the high safety of apps,followed by medium safety. The low safety is least preferred by them.

Table 7: Part-Worth Utility Table

Attribute	Choices	Utility	Preferences
Mobile Payment Apps	BHIM App	0.0296	Amazon Pay>BHIM App = Paytm>Phone Pay>Google Pay
	Google Pay	-0.3414	
	Phone Pay	-0.1474	
	Paytm	0.0296	
	Amazon Pay	0.4296	
Features	Very Good	0.293	Very Good>Good>Normal
	Good	-0.084	
	Normal	-0.209	
Reward	Very Good	0.426	Very Good>Good >Normal
	Good	-0.130	
	Normal	-0.297	
User Friendly	Yes	0.1835	Yes > No
	No	-0.1835	
Security	Low	-0.111	High>Medium > Low
	Medium	0.031	
	High	0.08	

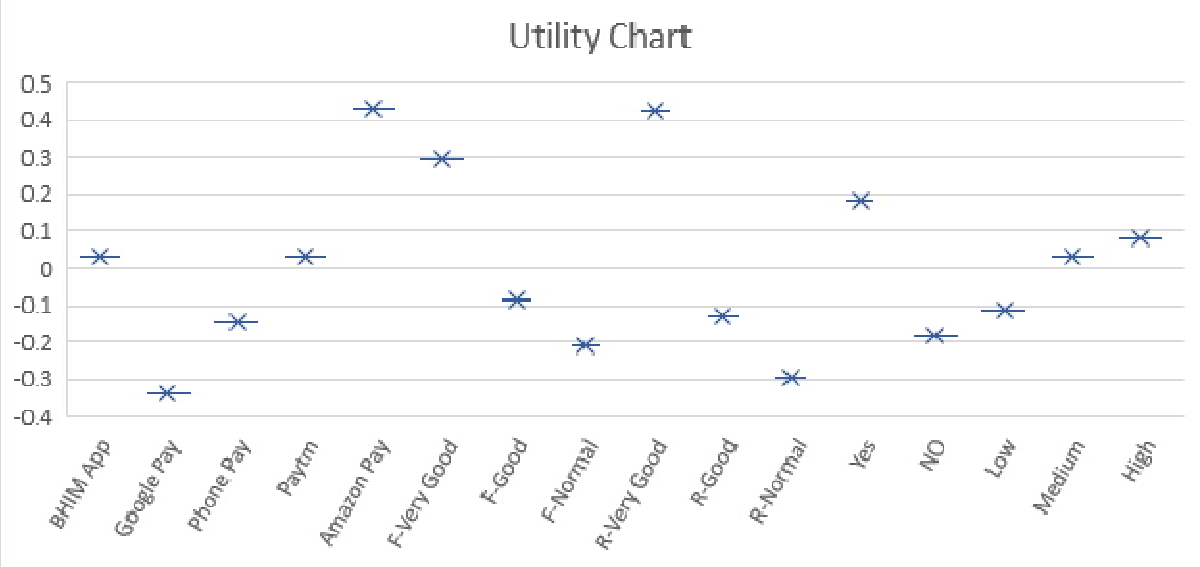

Figure: 2 Part worth Utilities of all the Choices with each attribute

To calculate the part-worth utility of all five attributes, the conjoint calculator was used. Table 8 shows the relative importance of every attribute utilized in mobile payment apps. The results show that 'Mobile Payment Apps' havethe maximum relative importance. 'Reward' is the second most preferred attribute followed by 'Features' and 'User Friendly'. 'Security' is found to be the least preferred attribute. The relative importance of 'Mobile Payment Apps', 'Features', 'Reward", 'User Friendly', and 'Security' are 30%, 20%, 28%, 14%, and 8%, respectively. The higher percentage of relative importance indicates a higher contribution of the attribute in the decision to use mobile payment apps by the housewives.

Table 8: Relative importance of different attributes

Attributes	Range of Utility	Relative Importance	Preference
Mobile Payment Apps	0.771	30%	Mobile Payment Apps >Reward >Features >User Friendly >Security
Features	0.502	20%	
Reward	0.723	28%	
User Friendly	0.367	14%	
Security	0.191	8%	

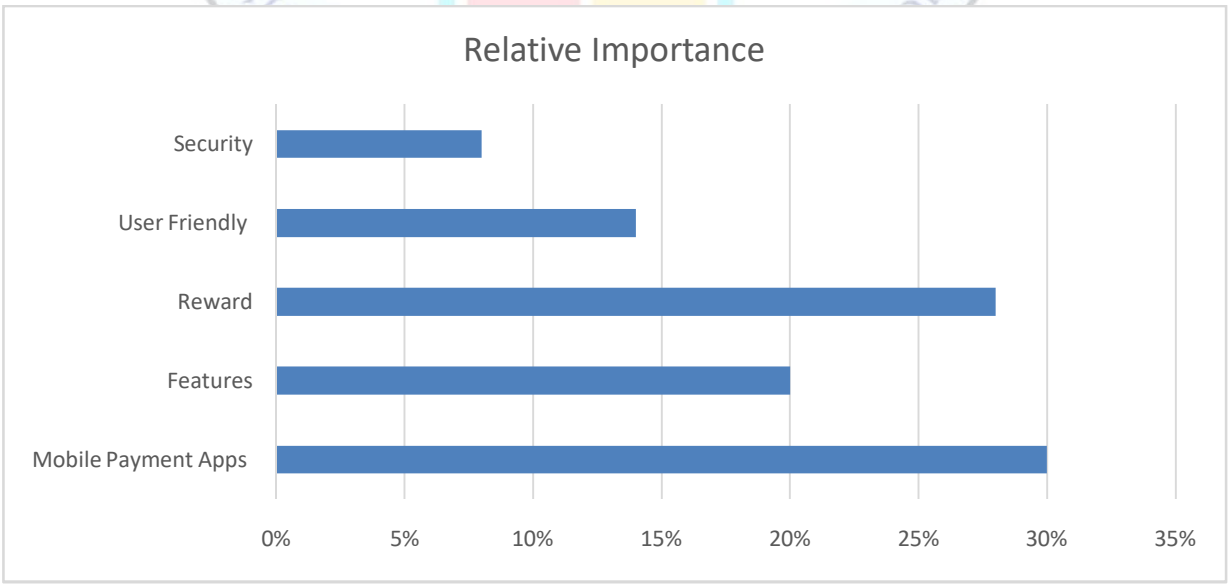

Figure 3: Relative Importance of each attribute

Conclusion:

This research study has used five attributes of mobile payment apps, viz., 'Mobile Payment Apps', 'Features', 'Reward", 'User Friendly', and 'Security'. The main focus of this study is to determine which of these characteristics are most and least favored by housewives. The researchers also assessed the relative value of each option in terms of numerous features by using conjoint analysis. The results show that the attributes of mobile payment apps related to their uses are not significantly different from each other. It was also found that housewives are normally clear about their choices in various attributes.

Amazon Pay is the most preferred choice, and Google Pay is the least preferred mobile payment app by housewives. It was also found that Very good features are more useful and Normal features are least useful for housewives. Very good rewards are most preferred, whereas Normal rewards are least preferred for housewives. "Yes" user-friendly is more useful than "No" user-friendly.Interestingly, it is found that housewives found to most prefer high security and lest preferlow security.

Limitations, Future Research, and Implications:

This study is confined to the evaluation of the housewife's preferences to use mobile payment apps for only five attributes. Future studies could involve other attributes so that further information on this topic can be explored in depth. The housewives of Nagpur City, Maharashtra, India, only participated in this study. Future studies may also be conducted in various other geographic areas for different other types of mobile payment apps users so as to get more insights into the topic at hand. In this study, researchers only considered the top five apps, but future studies may be conducted on the rest of the mobile payment apps. The results of this research study would be useful to the various types of mobile payment app users for making their decision for which mobile payment apps will be best to use in the future.

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