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Digital Payment Acceptance at Small Scale Retail Outlets: An Empirical Analysis

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ABSTRACT

The literature has extensively studied the consumer's adoption of digital payment system and has proposed several factors that contribute to the use of such services. However, very limited work has been done on the small scale retail outlets adoption of digital payment systems. The present study investigates the socio-economic profile of small scale outlet retailers and to know what factors impact the small scale outlet retailer's acceptance of alternative digital payment instruments in-store. For this purpose, data has been collected using primary as well as secondary sources. The primary data comprises a sample of digital payment system users i.e. small scale outlet retailers from Amritsar, Jalandhar and Ludhiana region of Punjab. The data has been analyzed using statistical tools like Cronbach's alpha, mean, standard deviation and EFA using SPSS. The outcome of exploratory factor analysis (EFA) has identified four factors viz. competition, collaboration, transaction factor, and cost having variance of 21.602%, 18.660%, 17.169% and 15.570% respectively. The cumulative variance explained by all these factors was 73.001%. The results of the study direct policy makers and digital payment service providers towards the areas seeking more attention and help them to provide best possible services to the small scale outlet retailers.

Keywords: Digital payment system (DPS), Small scale retail outlets (SSROs), Small scale outlet retailers (SSORs), Alternative digital payment instrument (ADPI), Exploratory Factor Analysis (EFA), Euclidean Distance Model

1. Introduction

Over the years numbers of studies have been conducted in the area of consumer's adoption and continue intention to use DPS. However when it comes to small scale retail outlets acceptance and intention to continue using DPS very few studies have been conducted. Mallat and Tuunainen (2016) found cost, complexity in operating DPS, lack of critical mass, trust and security issues and lack of standardization to be the bottlenecks in the way of DPS and on the other hand escalation in impulse purchase, enhanced customer services, enlargement in the range of product and services and brand positioning etc. to be the drivers of SSRO acceptance of DPS.A special mention here can be made of the rising popularity of the mobile payment technology amongst the SSRO because of the feature of ubiquity (wide penetration of mobile telecommunication technologies all around the globe). (Clarke, 2001) also preferred mobile payments over the internet payment services. Users from developed as well as developing areas

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consider mobiles as the personal gadget and always try to keep it turned on (Jarveenpaa and Lang, 2005). Apart from this, using mobile payment technology provides an opportunity to make payments anywhere any time irrespective of their current location (Frolick and chen, 2004). Also the acceptance of mobile technology especially mobile wallet has several factor which impact the mobile technology acceptance viz. customer value addition, perceived cost, perceived trust, compatibility and infrastructural issues (Hayashi and Bradford, 2014).

2. Objectives of the Study

- To know the socio-economic profile of SSOR's using DPS for payments acceptance in-store;
- To investigate which method of alternative digital payments is high preferred amongst the SSORs in-store;
- To know factors impacting SSORs acceptance of alternative digital payment instruments.

3. Literature Review

3.1. Small Scale Retail Outlets' Perspective

Ally et al., (2010) reported that the retail business operating at the small scale need to adopt to the dynamic retail payment environment and to infuse trust and confidence in their consumers mind to shift to the DPS. The retail business payment landscape has totally revolutionized over the years where a lot of digital payment options have been added to the traditionally available modes of payments. This has further raised concerns about the evolution of new business models and parties involved in the payment landscape (Forner, 2003).With the introduction of the innovative digital payment instruments, the digital payments methods viz. credit cards, debit cards and payments made over internet which were once very popular are now not on the priority list while making digital payments by consumers as well as the retail businesses (Walczuch and Duppen, 2002). To increase the acceptance of digital payments amongst consumers the retail businesses has to lower payment processing fees, make digital shopping platforms more appealing so that they should match consumer demographic requirements and at the same time retailers need to have a check on the shopping cart abandonment rate (Mercator Advisory group, 2007). Also the NFC payments are grabbing the attention of both consumers and merchants now-a-day because of their speed and convenience in making payments (See, S. Y. et al., 2021). Here diffusion of innovation also play a great role in gearing up the NFC technology acceptance (m-wallets/ mobile payments) and also it shapes the users intention to further recommend its use to others (Kaur, P. et al., 2020). Interestingly, digital payments system when used in the business for making contactless payments further speeds up the card sales amount and also attracted new consumers during the pandemic conditions (Camara and Youssof, 2021)

3.2. Digital Payment Instrument Characteristics

3.2.1. Cost: The cost of digital payment transactions includes pre-transaction charges in the case of credit cards and debit cards and the payments made directly to payment

processors and the financial institutions for carrying out payment transactions. Literature sheds light on the significance of average transaction value and the transaction volume in the retail business perspective and also it shows that debit and credit card fees decreases with the increase in volume of transactions (Arango and Taylor, 2008).

3.2.2. Risk (safety/security): There are varying categories of risk categorized in the case of DPS viz; risk of counterfeiting, risk of theft or risk of fraud. Where the total transaction volume (higher the sales volume higher the risk) and the location of carrying out transaction affects the intensity of risk. Literature also reveals that as the volume of transactions increases, the credit cards become more risky than the debit cards (Arango and Taylor, 2008).

3.2.3. Transaction Criteria: The transaction criteria as defined by (Swiecka, B. et al., 2021) have three distinct areas viz; the place of purchase (in-store, internet shopping, bill payment, or settlement with other individual), amount of transaction (up to Rs 2,000, and Rs 2,000 and above) and types of goods and services purchased (food, clothing, shelter, home help, appliances, furniture, car use and public transport ticket etc). The merchant often takes the merchant discount rate (MDR) on the processing of transaction as the disincentive in carrying out digital payment transactions (RBI, 2016). As per the new rules, small merchants will bear MDR of 0.40% for physical POS and the fee will not exceed Rs 200 per transaction.

4. Research Methodology

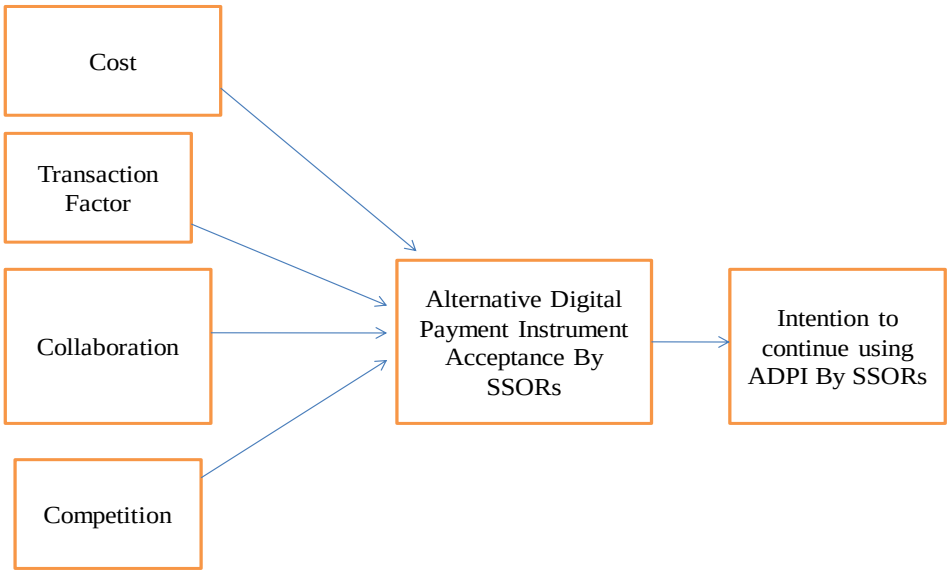
4.1. Method of Data Collection

The present study uses primary as well as secondary sources of data collection where secondary data has been collected from reputed journal articles, newspapers and e-books. The primary data on the other hand, has been collected from the Amritsar, Jalandhar and Ludhiana regions of Punjab. For the purpose of this study, primary data was collected from 145 respondents (small scale outlet retailers) through the means of a structured questionnaire. The 133 respondents in our sample are small scale outlet retailers and the sample has been taken from confectionery stores and Kirana stores.

4.2. The Research Model

The conceptual model used in the present study is depicted through figure 1. The model is constructed by using Payment instrument characteristics viz. cost, competition, collaboration and the transaction factors. The model has been adopted from the previous contributions in the area of merchant acceptance of digital payments which sheds light on the role of competition and also focuses on the coopetition environment in digital payment landscape for future innovations in digital payment systems (Miles, 2005, Metcalfe and Miles 2000, Gassmann et al., 2014, Baldwin and Hippe, 2012, Lee et al., 2012, Carayol and Roux, 2005, Hardin, 1982, and Kozinet et al,. 2008) at the same time the contributions given by (Arango and Taylor, 2008) were emphasized for developing cost and transaction factors.

Figure 1
The Research Model



(Source: Author's Contribution)

4.3. Instrument Development

To conduct the survey, questionnaire was developed based on the previous studies. With the expert advice, some questions in the present study were modified to better suit the context of the present study. For the purpose of present study, all the non-demographic items on the questionnaire have been rated using five point Likert-Scale ranging from 1=strongly agree to 5=strongly disagree.

4.4. Data analysis

The data has been analyzed using various statistical tools like frequency, percentages, mean, median and hierarchical ranking of the digital payment instrument (DPI) depending upon the responses given by the owner of small scale retail outlets.

5. Result and discussion

5.1. Socio-economic profile of the SSORs

Socio-Demographic profile of the SSORs is described on varying dimensions ranging from age, gender, education, area of survey, and marital status.

Table 1
Socio-Economic Profile of the SSORs

Sr. No.	Profile	Category	Digital payment users	
			Count	%
1	Area	Amritsar	44	33.08%
		Jalandhar	44	33.08%
		Ludhiana	45	33.80%
2	Gender	Male	133	100%
		Female	Nil	0%
		Total	**133**	**100%**

Sr. No.	Profile	Category	Digital payment users	
			Count	**%**
3	Marital Status	Married	63	47.3%
		Single	70	52.6%
		Total	**133**	**100%**
4	Age	Below 20	48	36.4%
		21-30	52	39.4%
		31-40	15	11.44%
		41-50	18	13.5%
		50 and above	Nil	0%
		Total	**133**	**100%**
5	Educational Qualification	Matric	51	38.9%
		Senior secondary	61	46.66%
		Graduate	21	15.78%
		Total	**133**	**100%**
6	Average turnover	Below 1 lac per month	95	71.43%
		Rs. 1 lac -2 lac per month	38	28.5%
		Total	**133**	**100%**

Source: Author's Calculation

Regarding the area of 133 respondents, 45 respondents were from Amritsar, another 45 were from Jalandhar and 46 candidates were from Ludhiana region of Punjab respectively. On the basis of gender, all the respondents from SSORs were male only and no female candidate was spotted as the owner of SSROs chosen for the present study. Majority of the respondents i.e. 52.6 percent (n=70) were unmarried and remaining 47.4 percent (n=63) were married and no one was divorcee. The respondent's distribution on the basis of age was, 36.4 percent respondents (n=48) were from the age group 18-20, 39.4 percent respondents (n= 52) were from the age group 21-30, 11.44 percent respondents (n=15) were from age group 31-40, 13.5 percent (n=18) were from age group 41-50 and no candidate above 50 years of age was found accepting ADPI at SSRO. About the educational qualification, 38.9 percent respondents (n=51) were matric, 46.6 percent (n=61) just senior secondary, 15.78 percent (n=21) were graduates, no one has done post-graduation from the population of the study. As average turnover of the SSORs is concerned, 95 respondents said to have an average monthly turnover of less than 1 lac rupees and rest 38 respondents admit that they have an average turnover above 1 lac but below 2 lac rupees.

5.2. Small Scale output retailer's preference for Digital Payment Acceptance:

The Multi-response permutation procedure has been used as an alternative to the analysis of variance and it helps in creating group differences useful for the interpretation analysis of the data. Meilke (1984) has made an effort to give full description of multi-response permutation procedure. The basic formula underlying the MRPP analysis is the distance function between two commensurate multivariate response vector Yi and Yj or drs and Srs (Buja, et al. 2007). The metric euclidean distance is given by the equation:

$$d_{rs} = \sqrt{s_{rr} + s_{ss} - 2s_{rs}}$$

Where:

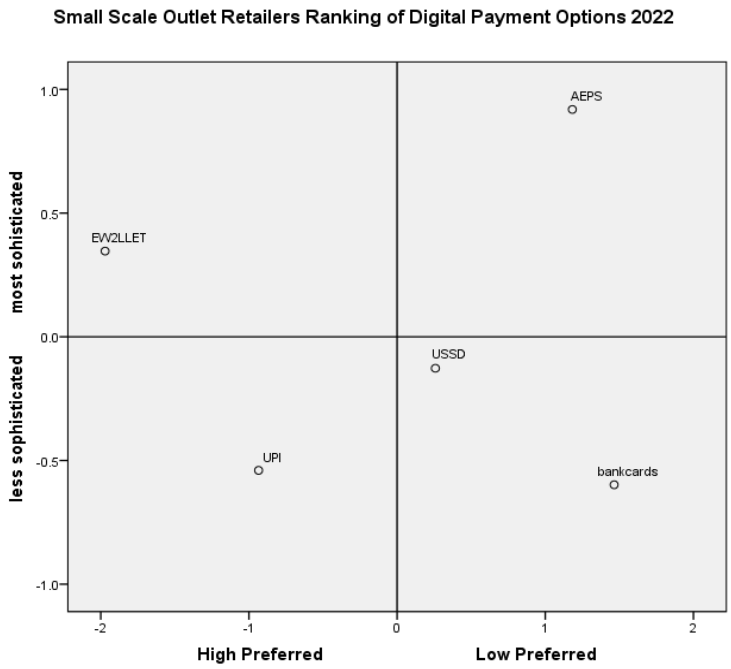
- d_{rs} = a dissimilarity
- s_{rs} = a similarity

Other notations are:

- *I* and *j* = sometimes used in place of d_{rs} and s_{rs} to indicate primary and secondary points
- Δ = the matrix usually *(n*n)* representing the dissimilarities
- d_{rs} = the distance between the point *r* and point *s* (not to be confused with the dissimilarity notation d_{rs} in the above conversion equation)

X= the matrix of the coordinate values in lower dimension space

Figure 2



Source: Authors' calculation
Note: *Based on primary data from field survey in selected regions of Punjab 2022 using Euclidean distance model*

Table 2

Descriptive Statistics				
	N	**Sum**	**Mean**	**Std. Deviation**
E-Wallet/M-Wallet	133	173.4594	1.3042	.6736
UPI	133	295.5675	2.2223	.8239
USSD	133	433.891	3.2623	.57783
AEPS	133	520.0	3.910	1.1041
Bank Cards	133	565.7837	4.2540	.8087

Source: *Authors' calculation*
Note: *Based on primary data from field survey in selected regions of Punjab 2022 using Euclidean distance model*

5.3. Exploratory Factor Analysis

All the items in the scale are subjected to principal component analysis with varimax rotation and Kaiser Normalization. It is found that none of the statements has factor loading less than 0.5 else, they are to be eliminated (Hair, et al., 2006). Results of factor analysis indicate that only four factors are having Eigen values greater than one (8.677, 3.666,

1.243 and 1.014, respectively for all factors). The total variance explained by factor 1, 2, 3, and 4 is 21.602, 18.660, 17.796, and 15.570 percent respectively. The cumulative variance explained by all these factors is73.001 percent.

Table 3
Factor Loadings Explained

Factors	Statements	Label	Cronbach's alpha	Cumulative Cronbach's alpha
FACTOR 1 (COMPETITION)	I will like to surcharge card payments in case of intense competition in the market	ADPI_24	.870	.894
	I believe my decision of DPS acceptance will become firm in situation of intense competition	ADPI_22	.875	
	I believe I will like to surcharge card payments in case I enjoys monopoly in the market	ADPI_23	.871	
	I believe it will lead to network externalities	ADPI_17	.877	
	I believe it will lead to the increase in retail traffic at small as well as the new retail outlets	ADPI_15	.884	
	I will not like to accept DPS in case I have monopoly in the market	ADPI_20	.874	
FACTOR 2 (COLLABORATION)	I believe the use of innovative payment instruments saves time	ADPI_11	.880	.903
	I believe it will lead to reduction in ATM withdrawals	ADPI_18	.886	
	I believe it will lead to a consumer engaging experience	ADPI_16	.891	
	I believe payment through IDPI can be accepted anywhere any time 24*7	ADPI_10	.883	
	I believe I can avail various promotional offers by accepting IDPI	ADPI_12	.888	
	I believe the use of IDPI are more convenient and less costly	ADPI_13	.885	
FACTOR 3 (TRANSACTION FACTOR)	I believe the no surcharge rules will make debit card payment acceptance costly for me	ADPI_1	.859	.918
	I believe the no surcharge rule will increase my card payment fees to card network operators	ADPI_3	.868	
	I believe increase in small value IDPI transactions will increase consumer traffic at my store	ADPI_9	.899	
	I will prefer accepting IDPI for small size transaction in-store	ADPI_6	.944	
FACTOR 4 (COST)	I believe the no surcharge rules will make will make credit card payment acceptance costly for me	ADPI_2	.814	.878
	I believe that my acceptance of IDPI has lead to increase in transactions through card sales	ADPI_7	.840	
	I will not like to accept card payments in no surcharge situation	ADPI_4	.834	
	I believe my acceptance of IDPI will lead to increase in transaction efficiency in my retail outlet	ADPI_8	.889	

Source: Author's calculations based upon the primary data
Note: Primary data has been obtained from Amritsar, Jalandhar and Ludhiana district of Punjab.

From Table 3, it is clear that the Cronbach's alpha for variables on the scale is .918, .903, .878 and .894 respectively.

5.4. Resulting Factors:

The result specifies four dimensions of digital payment acceptance at small scale retail outlets which are described as below:

Factor one explains a total variance of 21.602 percent and was tagged as competition. This factor is composed of varying statements related to surcharge card payments in case I face intense competition in the market, DPS acceptance will become firm in situation of intense competition, surcharge card payments in case I enjoys monopoly in the market and so on. Factor two explains a variance of 18.660 percent and is named as collaboration. It includes statements viz. innovative payment instruments saves time, surcharge card payments in case I enjoys monopoly in the market, IDPI can be accepted anywhere any time 24*7 and in total six statements are covered under this factor. The third factor is named as transaction factor and explains a variance of 17.169 percent. It includes statements viz. no surcharge rule will increase my card payment fees to card network operators, IDPI for small size transaction in-store and two more statement in total it has four statements. The fourth factor is tagged as cost having a variance of 15.570 percent and includes statements viz. IDPI will lead to increase in transaction efficiency in my retail outlet, I will not like to accept card payments in no surcharge situation, small value IDPI transactions will increase consumer traffic at my store and no surcharge rules will make will make credit card payment acceptance costly for me.

Table 4
Factor Structure of Alternative Digital Payment Acceptance at Small Scale Retail Outlets

Factor Dimension	Code	Factor Loadings	Communalities	KMO	Eigen Value	Explained Variance
COMPETITION	ADPI_24	.790	.739	.739	8.677	21.602
	ADPI_22	.750	.673	.673		
	ADPI_23	.736	.728	.728		
	ADPI_17	.719	.668	.668		
	ADPI_15	.713	.683	.683		
	ADPI_20	.682	.645	.673		
COLLABORATION	ADPI_11	.849	.810	.810	3.666	18.660
	ADPI_18	.821	.776	.776		
	ADPI_16	.715	.680	.680		
	ADPI_10	.647	.670	.670		
	ADPI_12	.628	.631	.631		
	ADPI_13	.623	.700	.701		
TRANSACTION FACTOR	ADPI_1	.912	.923	.923	1.243	17.169
	ADPI_3	.905	.893	.893		
	ADPI_9	.799	.786	.939		
	ADPI_6	.677	.622	.622		
COST	ADPI_2	.835	.812	.812	1.014	15.570
	ADPI_7	.828	.743	.756		
	ADPI_4	.749	.798	.837		
	ADPI_8	.686	.622	.622		
Total Variance Explained						73.001

Source: Author's calculations based upon primary data
Note: Primary data has been obtained from Amritsar, Jalandhar and Ludhiana regions of Punjab

As reported in the results the most important factor that affects SSORs acceptance of alternative digital payment instruments was competition and the least important factor is cost. Factors other than the above mentioned factors, which significantly impact merchants' acceptance of

alternative digital payment instruments, were transaction factor and collaboration in digital payment instruments.

6. Conclusion

The findings of the present study are explained in three parts. Part one of the results describes the socio-economic variables of ADPI at SSROs in the selected regions of the Punjab where the study depicts that education does not matter much in ADPI acceptance in store by small retailers as maximum respondents from the sample who opted ADPI are only matric pass. Talking about the marital status the majority of respondents (n=70) were unmarried and rest (n=63) are married. The average turnover of the SSROs is below 1 lac (n= 73) and (n=60) falls in the average turnover category i.e. 1 lac to 2 lac.

In the second part of the paper the ranking of most and the least preferred ADPI at SSRO's has been done using Euclidean distance model. The results reveal that amongst the in-store purchases at SSRO's the e-wallet is the most preferred amongst the retailers and the retailers don't like accepting the bank cards much. Ultimately the SSRO's bent towards the e-method of payments is found more in contrast to using bank cards because of their convenience and no need to enter PIN every time the payment transactions are being carried out.

The third section elaborates the results supported SSRO's model of alternative digital payment acceptance in-store using EFA and various factors affecting the SSORs acceptance of DPS were explored. The results also demonstrated these factors such as, competition, collaboration, transaction factors and cost which shape up SSORs choice amongst the alternative payment instrument acceptance in-store. The small scale confectionery and kirana are accepting the digital payments. The same model can be extended to other small scale businesses apart kirana and confectionary stores to know the SSROs acceptance of digital payment systems. This will further help the policy makers and the marketers to know the preferences of SSROs and plan their policies and strategies accordingly.

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