

Sustainability of Small Merchants Through Digital Technologies

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Abstract

In the last two years, there has been an attempt to move towards a cashless society and create a Digital India. The Government of India is encouraging use of a variety of payment systems post demonetization in November 2016. The focus of this paper was to understand the use of point-of-sale (POS) systems installed by merchants and service providers for receiving payments from customers for transactions involving sale of goods and services to the public. The primary focus of the paper was to understand the adaptability, affordability, and sustainability of the payments system as seen from the point of view of small merchants. The paper is based on a study conducted in 2017, aimed at understanding the different types of payment systems that are available to the small merchants. It also looked at the difficulties faced by them and their effect on their businesses. A total of 221 responses were collected in Chennai, capital city of Tamil Nadu in South India. The results showed that cash remained the most preferred mode for business. Cash was required for working capital, payment of employee remuneration, wages, and others. With regards to the use of payment systems like POS, more awareness needs to be created about the benefits in having non-cash transactions. It seemed that the merchants would be convinced if it could improve credit worthiness and eligibility to receive loans from banks.

Keywords: fin-tech, demonetization, technological innovation, sustainability, small merchants, point of sale, prepaid payment instruments

JEL Classification : E39, E69, Q55, Q56

Paper Submission Date : August 10, 2018 ; **Paper sent back for Revision :** December 19, 2018 ; **Paper Acceptance Date :** December 23, 2018

Digital technologies have played a growing role in finance for a long time. The use of ICT in payments systems, the withdrawal of cash from ATMs, and the integration of vast amounts of data into investment processes has been around for decades. Today, digitalization is making inroads into the sector with accelerating speed. Under the headline of “Fintech,” innovative digital technologies are becoming ever more important and a disruptive factor. While the impact of these developments on customers and financial services providers is being analyzed in depth, a solid debate on the broader implications of Fintech for society is yet to start. The disruptive power of Fintech can lead to reduced costs and improve the quality of financial services. Lower interest rates for loans, better algorithms for assessing risk, and smaller fees for money transfers are examples in

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this context. Efficiency gains through Fintech may also offer opportunities to make finance more inclusive and expand services at a lower scale – in particular also for SMEs that may benefit from more tailored solutions. Innovations in payment systems stand at the core of this development.

In this context, the Government of India has been encouraging use of a variety of payment systems post demonetization. The point of sale (PoS) is one of the most popular systems currently installed by merchants and service providers for receiving payments from customers. The focus of this paper is to understand the use of POS as they are predominantly used in transactions involving sale of goods and services. The primary focus is to understand the adaptability, affordability, and sustainability of the payments system as seen from the point of view of small merchants.

Payment and Settlement Systems in India

There are three payment and settlement systems in India :

(i) Paper-based payment and settlement systems which are well established and traditional. These include cheques, drafts, and other such similar paper based systems. The volume of transactions has reduced drastically.

(ii) The advancements in computer and communication technology have enabled the introduction of electronic payment systems which are cost effective, easy to use, and fast. They are attractive to the customers and account for around 22% of all non-cash transaction in terms of volume currently. The electronic payment systems include Electronic Clearing Services (ECS), Electronic Funds Transfer (EFT), National Electronic Funds Transfer (NEFT) system, Real Time Gross Settlement (RTGS) system, and Clearing Corporation of India Limited (CCIL).

(iii) There are other payment systems which include pre-paid payment systems, mobile banking systems, ATMs, point of sale (POS) terminals, and online transactions.

Figure 1. Types and Features of POS



Features	mPOS	Handheld POS	Fixed Line POS
	- No extra device cost	- Device cost applicable (works with both fixed line and SIM)	- Device cost applicable (works only with fixed lines)
	- Monthly maintenance cost	- Monthly maintenance cost applicable	- Monthly maintenance cost applicable
	- Transaction costs apply	- Transaction costs apply	- Phone lines cost apply
	- Mobile data costs apply	- Mobile data costs apply	- Generates paper receipts
	- E-receipts	- Generates paper receipts	- Accepts payments from only credit and debit cards
	- Accepts payments from all types of cards and apps	- Accepts payments from only credit and debit cards	- Value added services are offered separately for extra cost
	- Value-added services can be integrated	- Value added services are offered separately for extra cost	- High cost for maintenance
	- Minimal cost for maintenance	- High cost for maintenance	

Note. Desktop GPRS and Portable GPRS would both constitute handheld POS.

The convenience, ease of use, and acceptance among traders has made these payment systems an integral part of everyday transactions. The number of point of sale terminals in India currently is around 25 lakhs. Demonetization gave an additional impetus to adding over 10 lakh machines in the last 5 months alone of the financial year 2016-17.

Merchants need to approach a bank to acquire a POS system and avail the services. The banks on their part seek to assure that there is an active business running for a specific number of days or the turnover per month is above a specific limit. The merchant can opt for any of the three types of POS as shown in the Figure 1. In case of fixed line POS/public switched telephone network (PSTN), the landline connection should be available with the merchant ; else, the merchant should opt for the GPRS based POS. The merchant and bank should come to an agreement regarding the merchant discount rate (MDR) and settlement period. Usually, it is T+1 day.

The mobile POS system installed on a smartphone is also offered by payment solution companies such as mswipe, Paynear, ezetap, and others. The mPOS can accept payments by both card as well as mobile wallets. For security, all POS machines should adhere to payment card industry - data security standards (DCI - DSS) and payment application - data security standards (PA - DSS).

The Table 1 shows the increase in volumes of digital transactions both in terms of the channels used for digital transactions and the number of transactions as also in terms of volumes. There has been a growth of nearly 400% in the use of PoS between 2013 and 2018.

According to the Reserve Bank of India Bulletin (RBI, Payment System Indicators, 2018), the indicators for

Table 1. Technology - Enabled Touchpoints and Transactions Over the Years

Detail	2013	2014	2015	2016	2017	Growth(%) 2013 to 2018	Sep 2018
Infrastructure in ('000s)							
Onsite ATMs	56	83	89	102	109	192	108
Offsite ATMs	58	77	92	97	97	167	97
Online PoS	841	1050	1126	1385	3027	403	3393
Total touchpoints	968	1226	1308	1585	3234	371	3599
Credit Cards (Nos in million)							
Outstanding credit cards	19.54	19.18	21.11	24.51	34.49	213	41.77
Transactions at ATMs	0.23	0.30	0.44	0.61	0.71	347	0.80
Transactions at PoS	35.62	46.11	56.91	72.22	1237.69	3880	1382.30
Amounts ₹ billion million at ATM	1.49	1.66	2.34	2.80	3.34	249	3.72
Amounts ₹ billion million at PoS	111.22	145.49	178.99	226.94	418.63	414	461.01
Debit Cards (Nos in million)							
Outstanding debit cards	331.20	394.42	553.45	661.82	8424.71	2988	9897.86
Transactions at ATMs	482.00	571.50	624.21	731.72	7619.31	1656	7986.46
Transactions at PoS	45.38	56.98	76.11	112.87	2923.88	7993	3627.47
Amounts ₹ billion million at ATM	1556.41	1796.10	1987.48	2245.82	2640.39	172	2690.59
Amounts ₹ billion million at PoS	66.87	85.77	108.28	134.63	40.76	68	45.84
Number of ATM txs per card	1.46	1.45	1.13	1.11	0.83		0.80
Number of PoS TxS per card	0.14	0.14	0.14	0.17	0.32		0.36

Source: Reserve Bank of India (n.d.), ATM/PoS/Card Statistics, <https://rbi.org.in/scripts/ATMView.aspx?atmid=61> ; The ATM statistics are available at the NPCI website at <http://www.npci.org.in/nfsatm.aspx>

Table 2. Payment System Indicators

Item	Volume (million)			Value (₹ billion)		
	2014-15	2015-16	2016-17	2014-15	2015-16	2016-17
1	2	3	4	5	6	7
Systemically Important Financial Market infrastructures (SIFMIs)						
1. RTGS	92.8	98.37	124.46	754,032	824,578	1,467,431.99
Total Financial Markets Clearing (2+3+4)	3.0	3.1	3.49	672,456	721,094	1,074,802.02
2. CBLO	0.2	0.2	0.2	167,646	178,335	283,307.58
3. Government Securities Clearing	1.0	1.0	1.12	179,372	183,502	370,363.78
4. Forex Clearing	1.8	1.9	2.17	325,438	359,257	421,130.66
Total SIFMIs (1 to 4)	95.7	101.4	127.95	1,426,488	1,545,672	2,542,234.01
Retail Payments						
Total Paper Clearing (5+6+7)	1,195.8	1,096.4	1,171.32	85,439	81,861	81,934.92
5. CTS	964.9	958.4	1,138.05	66,770	69,889	79,451.24
6. MICR Clearing	22.4	0.0	0.0	1,850	0	0
7. Non-MICR Clearing	208.5	138.0	33.27	16,819	11,972	2,483.68
Total Retail Electronic Clearing (8+9+10+11+12)	1,687.4	3,141.6	5,467.30	65,366	91,408	1,92,017.98
8. ECS DR	226.0	224.8	1.54	1,740	1,652	9.72
9. ECS CR	115.3	39.0	6.14	2,019	1,059	118.64
10. NEFT	927.6	1,252.9	1,946.36	59,804	83,273	172,228.52
11. Immediate Payment Service (IMPS)	78.4	220.8	1,009.80	582	1,622	8,924.98
12. National Automated Clearing House (NACH)	340.2	1,404.1	2,503.46	1,221	3,802	10,736.12
Total Card Payments (13+14+15)	1,737.7	2,707.2	16,817.67	3,325	4,484	39,630.98
13. Credit Cards	615.1	785.7	1,412.97	1,899	2,407	4,626.33
14. Debit Cards	808.1	1,173.5	11,945.65	1,213	1,589	33,588.31
15. Prepaid Payment Instruments (PPIs)	314.5	748.0	3,459.05	212	488	1,416.34
Total Retail Payments (5 to 15)	4,620.9	6,945.2	23,456.29	154,129	177,752	3,13,583.88
Grand Total (1 to 15)	4,716.6	7,046.6	23,584.24	1,580,617	1,723,425	28,55,817.89

Source: RBI (2008). Payment system indicators. Retrieved from https://www.rbi.org.in/scripts/BS_ViewBulletin.aspx

the payments systems shows the increase in volumes of digital transactions both in terms of the channels used for digital transactions and the number of transactions as also in terms of volumes (Table 2). Over the years, there would be a steady decline in the use of cash and a move towards a cashless economy.

Literature Review

Technological development over the past three decades has been the important driving force behind the change in the structure and the innovation in financial technology and instruments. Major changes were seen in the retail payment systems with the new innovative electronic payment systems and instruments such as banking cards (credit and debit), unstructured supplementary service data (USSD), Aadhaar Enabled Payment System (AEPS), unified payments interface (UPI), mobile wallets, banks' pre - paid cards, point of sale (PoS), Internet banking, mobile banking, and micro ATMs that have gradually supplemented and replaced the traditional paper-based payment systems (Scholnick, Massound, Carbo - Valverde, & Rodriguez-Fernández, 2008).

Because of digital innovation in payment systems and instruments, the future of digital payments system has become an important point of debate in both financial markets and among the regulators, especially in the relationship with technology, banking, and adoption strategy (Bolt, Humphrey, & Uittenbogaard, 2008 ; Khan & Roberds, 2009).

In India, the banking sector has undoubtedly withstood the challenges at the national and international levels and has acted as the prime catalyst for economic growth. It has been in the forefront of technology adoption and management in the changing environment (Rao, 2013). In a related study, it was further seen that except for age, perceived usefulness, perceived ease of use, intention to use, all confirmed to e-banking adoption behavior. This provided that there was enough incentive for bank managers to adopt appropriate strategies to encourage e-banking adoption among the consumers having different demographic characteristics in India (Chauhan, Choudhary, & Mathur, 2016).

Software selection is an important determinant for any successful business. When it came to small merchants, the technology enabled software was seen to be influencing more in terms of technical and non-technical aspects. Based upon the research with 122 small businesses, it was found that the selection criteria varied between the owners and the managers. Owners focused more on technical aspects and managers on non-technical aspects (Chau, 1995).

Adoption of technology has eight important determinants like sector, complexity, size, status, assertiveness, rationality, and interaction with organizational strategy (Julien & Raymond, 1994). The small merchants and/or owners as the decision making authority determined the information technology investment and its strategy (Ekanem, 2005).

In a study of e-commerce adoption by small and medium-sized enterprises of wooden handicrafts located in Saharanpur, Uttar Pradesh, it was revealed that organizational, technological, and strategy factors significantly contributed to the initial adoption of e-commerce. E-commerce has brought numerous changes to organizations and their businesses along with helping them to achieve excellence in different countries (Yadav & Mahara, 2018).

The European e-business report (EBR, 2008) found that with regards to the adoption of PoS, the key players' knowledge, information, or opinions played a significant role in the adoption of new technology like PoS.

Visa (2016) in its report on the 5-year outlook for accelerating digital payments in India ardently argued about the cost and how digitalization helped in continuous transactions. The report also identified the factors that continued the use of cash in India as - not enough emphasis on financial literacy, limitations by the regulators, infrastructure cost, gender inequality in the usage of digital payments, large shadow and remittance based economy, and a high propensity to save in and use cash. The report also suggested strategies to accelerate the use of digital payment gateways and pave way towards a "less-cash" economy, like expanding acceptance among

Figure 2. Readiness for Electronic Payments

	LOW	Acceptance Penetration	HIGH
HIGH	Transition (Limited Acceptance)		Electronic
Consumer Adoption	- Progression along acceptance development life cycle	- Electronic payments not yet used for everyday spends	- Specific niches of cash payments remain
	Cash-Centric		Transition (Limited Consumer Adoption)
LOW	- Heavily dependent upon cash payments	- Consumer resistance to electronic payments	- Need to demonstrate utility of electronic payments
	- Early stage of electronic payments ecosystem		

Source: VISA (2016).

merchants and consumers, strengthen innovation, and shoring up financial participation. The report also conceptualized the problem between the consumer adoption of digital finance and the infrastructure acceptance. While the consumer adoption would come from literacy, the acceptance penetration would be based on the infrastructure as shown in the Figure 2.

The ecosystem for digital banking has taken off in good earnest. Reserve Bank of India has articulated its vision for digitalization with four important strategies : responsive regulation, robust infrastructure, effective supervision, and customer centricity (RBI, 2017). Despite the potential and wide availability, PoS technologies are not yet widely used by small merchants (Statista, 2017). To be able to further stimulate the uptake of PoS, it is vital to understand how the small merchants value PoS and which elements play a role in the decision to adopt this technology. This paper, therefore, seeks to understand the PoS adoption by the small merchants in Chennai.

Objectives of Study

The objective of this paper is to understand the adaptability, affordability, and sustainability of the non-cash payment systems available at small merchants. More specifically, the questions are as follows :

- ↪ Is there a preference among merchants for cash ?
- ↪ If so, does this preference for cash be the reason for public preference also to go for cash transactions ?
- ↪ Are there any factors which affect the merchants' decision to install payment systems and continue using them ?

Why Small Merchants?

Micro and small merchants are a critical part of the economy and a key touch point in the economic lives of financially underserved populations. More than 180 million micro and small merchants operate across the developing world. While individually these businesses are small, but the influence within the global economy is significant. They transact over \$6.5 trillion per year and interact with more than 4.5 billion customers every day. Very little significance has been given to integrate them into the cashless economy, because these merchants typically have thin margins, low income customers, small transaction values, and operate in cash-based ecosystems.

Merchants themselves also stand to benefit as cashless acceptance can be a stepping stone to more sophisticated financial products. Given that less than 10% of merchants in the world currently accept digital payments, they represent \$35 billion in missed revenue every year for financial service providers. According to the Dalberg research and analysis, only 6% of Indian merchants accept digital payments (Carlberg, Lien, Gomez, Nayar, & Dougherty, 2016).

Any new technology or innovation gets adopted in stages. The new technology would be first adopted by the innovators and early adopters. In the Indian context, this would mean the organized retail segment, which accounts for 10-20% of the overall retail market. These groups would be followed by early majority and late majority. Small merchants typically fall into the category of early majority and late majority when it comes to adoption of technology. The reason being they do not have the scale or volume to go for newer innovations or technologies without any tangible proof of benefit or necessity. Hence, if a payment system is used by small merchants extensively, it shows that the system has penetrated successfully.

In this study, in order to find out the penetration of digital payment systems after demonetization, small merchants' shops were chosen. The study was taken up during April - June 2017. The small merchants were categorized into groups to check if there was a variation among them with respect to the objectives of the study.

The small merchants were placed into five categories, which are : (a) clothing, textile, shoes, and other such similar shops; (b) departmental stores; (c) hardware, electrical, and other such similar shops; (d) pharmacies, and (e) shops present in shopping malls. The merchants were studied with respect to their use of the POS machine.

Methodology

The main objective of the study is to identify whether the small merchants were able to adopt the PoS system and whether they were able to adapt, afford, and sustain the installed system.

A structured questionnaire was employed in which the items were measured by different measurement scales for adaptability (AD), affordability (AF), sustainability (SU), small merchants' perception (PE), and both measurement scale and dichotomous scale for organizational characteristics (OR) variables (Table 3).

The questionnaire included only closed questions regarding the knowledge about the PoS system, organizational characteristics, adaptability, affordability, sustainability, and the perception of the small merchants towards the PoS system usage. Population is infinite and hence, the sample selected was 221 respondents by convenience sampling techniques among the five categorizations in major business/shopping hubs in Chennai. All the selected respondents were personally contacted and interviews were conducted with the small merchants. The study was carried out in Chennai city only.

In order to identify the latent variables (main aspects) that affected the PoS acceptance, the data was analyzed using SPSS 20.0 version for factorial analysis, using the minimum residual method. For identifying the perception

Table 3. List of Variables and Labels

Label	Items
Or1	Owners' Age
OR2	Location of the Shop
OR3	Category of the Shop
AD1	It is easy to use
AD2	It is easy to learn
AD3	It is easy to integrate with other systems
AD4	Low cost of installation
AD5	Low Transaction cost
AD6	Easy to access
AD7	There is enough support from vendor
AF1	Able to Maintain the PoS
AF2	Easy accountability
AF3	Easy linkage between others
AF4	There is enough support from vendor
AF5	The PoS is easy to integrate with
AF6	The commission paid is justified
SU1	Sales has improved after installation
SU2	up gradation of PoS system
SU3	will continue to use the system
SU4	Small merchant preference
SU5	Customer Preference

of the small merchants towards the PoS system and what drives the usage of PoS was elaborated by structural equation modelling (SEM). Here, we differentiate covariance-based and variance-based by linear structural relations and partial least squares path methods, respectively.

The strategy to adopt PoS as Fintech and what was the acceptance level was found out using the following steps:

- (i) Revealing the aspects that influence the level of PoS adoption,
- (ii) SEM identification,
- (iii) SEM estimation,
- (iv) SEM testing,
- (e) SEM modification.

Analysis and Results

(1) Profile of Small Merchants : The sample composed of 221 small merchants, out of which 57.9% of the shops were located on the main road, 23.5% on the side roads, and 18.6% in the malls. Out of 221 respondents, 88 were textile shops, 49 departmental stores, 49 hardware stores, and 35 pharmacies, respectively. Around 42.1% of the store owners were in the age group of 30 - 40 years, 30.3% were around 40 - 50 years of age, and 17.2% & 10.4 % of the owners were aged around 50 - 60 years and 20 - 30 years, respectively (Table 4).

(2) Factor Analysis : Factor analysis was used to analyze the data collected which underlined the five factors. Here formative SEM model was used - exogenous latent variables measurement model was used with formative specifications because it seemed to be more reasonable to believe all the measurement models as an index rather than as a scale, contrary to the endogenous latent variables with reflective condition.

Table 4. Profile of Small Merchants

Location of Shop	Frequency	%
Main Road	128	57.9
Side Road	52	23.5
Mall	41	18.6
Total	221	100.0
Type of Shop	Frequency	%
Textile shops	88	39.8
Departmental Stores	49	22.2
Hardware Stores	49	22.2
Pharmacy	35	15.8
Total	221	100.0
Age of Owner	Frequency	%
20-30	23	10.4
30-40	93	42.1
40-50	67	30.3
50-60	38	17.2
Total	221	100.0

Table 5. Correlation of Latent Variables

	Perception	Sustainability	Adaptability	Affordability	Character
Perception	1.0000				
Sustainability	0.7883	1.0000			
Adaptability	0.6571	0.5901	1.0000		
Affordability	0.5329	0.4820	0.3602	1.0000	
Character	0.4958	0.3287	0.2781	0.1932	1.0000

The first factor includes the Organizational Characteristics aspect of the small merchants, the latent variables are formative in nature and termed as “Character”. The second factor is the items regarding adaptability of the PoS systems by the merchants and formative in nature and termed as “Adaptability”. The third and fourth factors are about the affordability and sustainability of the small merchants towards the PoS system and named as “Affordability” and “Sustainability”. The final factor is related to the items of Perception of the small merchants towards the PoS system, therefore, it is termed as “Perception”.

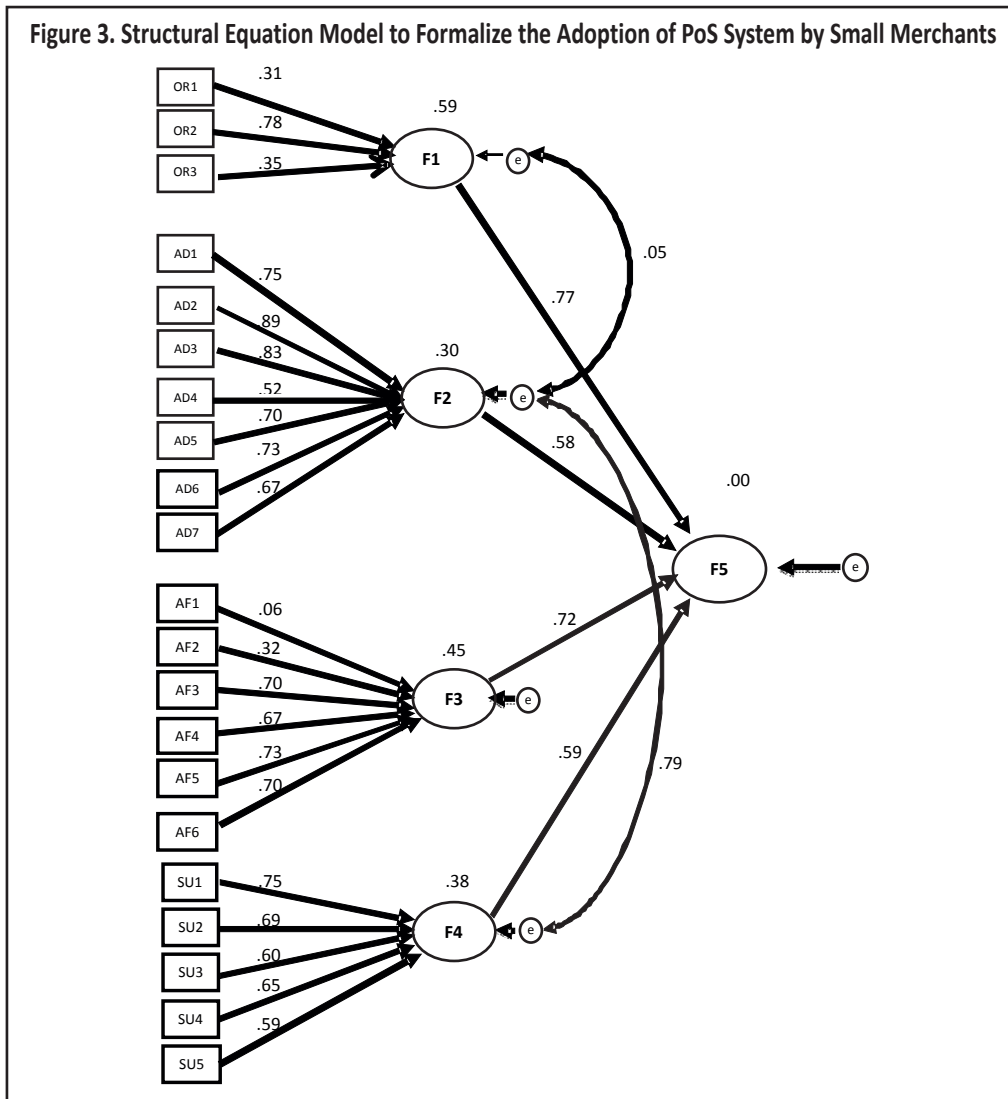


Table 6. Summary of Goodness of Fit and Specifying Models

Model	Absolute Adjustment Indices					Incremental Adjustment Indexes			
	CMIN	P	LO 90	HI 90	RMSEA	PNFI	NFI	CFI	TLI
4 factors, 1 second order factor, 21 items	834.6	0.00	0.069	0.076	0.074	0.731	0.936	0.942	0.932

Note. CMIN- the chi-square value; NFI-Normed Fit Index; CFI-Comparative Fit Index; TLI-Tucker Lewis index; RMSEA- Root Mean Square Error of Approximation

Table 7. Tetrad Test for Constructs

	Number of Indicators	Chi-Square (DF)	Significance Value	Implications
Character	3	7.6	0.010	Formative
Adaptability	3	8.2	0.002	Formative
Affordability	3	6.4	0.000	Formative
Sustainability	3	7.2	0.000	Formative

The model establishes a low correlation among factors (Table 5), that is, all the variables are largely independent of each other. The latent variables exhibit independent measures and all the indicators are in the same values. It is also seen that the causality flows from the latent variable to all the indicators and they are interchangeable. Based upon this, the reflective measurement model was chosen further for the latent variables. It was hypothesized that Character, Affordability, Adaptability, and Sustainability are exogenous latent variables and Perception towards PoS system will be the endogenous variable. The relationship and the results of the SEM using path model are shown in the Figure 3.

The goodness measurement model was verified with goodness of fit, and the CFI and RMSEA (0.942 and 0.074) are substantial (Table 6). Considering the path co-efficient, we identify that the impact of sustainability of the PoS system adoption is considerable (0.894). The second latent variable which influences the PoS adoption is the Affordability (0.705).

For each formative latent variable, the construct validity has been analyzed by means of the MINRES method applied on the polychoric correlation matrix of the manifest variables. The evaluation of discriminant validity all resulted in being acceptable. The estimated indicator weights' magnitude linking the manifest variable to the corresponding latent variable and all the bootstrapping results for assessing the significance of these weights (empirically convergent validity) are mentioned in the Figure 3. These results add further support to the formative model, as the latent variables predict that the small merchants' adoption of the PoS system and the majority of outer manifest variable coefficients and inner path coefficients have the right signs and adequate *t* - statistics. In any case, we chose to keep the non-significant items to preserve content validity (Bollen & Lennox, 1991).

With regards to the error and collinearity, we applied the vanishing tetrad test to the constructs. The test rejects the reflective model and supports the formative models as shown in the Table 7. The following guidelines have been used to measure the magnitude of error term : 0.02 (0.0196) for small, 0.15 (0.13) for moderate, and 0.35 (0.26) for large effect size correspondingly. In this research, all the error terms are turned out with small magnitude. In order to evaluate the collinearity, the VIF was computed for each manifest variable. Multicollinearity did not seem to pose a problem, as the maximum VIF came to 3.122, which is far below the common cut-off threshold of 10. However, both theoretical and empirical analysis show that the formative assumption is satisfactory. In the reflective model, all the manifest variables are strongly correlated. Since reflective indicators have positive intercorrelations, the individual and composite reliabilities of the indicators are empirically assessed using the Cronbach's alpha (> 0.70), where the average variance extracted is greater than 0.45 and internal consistency is 0.80. All these measures confirm the suitability of the reflective measurement

Table 8. Cross Loading Latent/Manifest Variables

Items	Perception	Sustainability	Affordability	Adaptability	Character
Owner's age	-0.082	-0.031	0.231	-0.101	0.351
Location of the shop	0.072	0.049	0.203	-0.064	0.147
Category of the Shop	0.264	0.143	0.201	-0.000	0.365
The PoS system is easy to use.	0.113	0.065	0.738	0.052	0.325
There is enough support from vendor.	0.198	0.209	0.317	-0.012	0.094
The PoS is easy to integrate with.	0.154	0.129	0.551	0.032	0.221
The commission paid is justified.	-0.060	-0.010	0.433	0.005	-0.248
Sales have improved after installation.	0.067	-0.019	0.178	0.156	0.038
Cost of Installation of PoS system.	0.621	0.367	0.198	0.235	-0.258
Will continue to use the system.	0.762	0.683	0.285	-0.025	0.258
Small merchant preference	0.691	0.538	0.267	0.086	-0.058
Customer Preference	0.632	0.802	0.219	-0.000	-0.264
The PoS system is easy to use.	0.531	0.673	0.218	0.071	-0.130
There is enough support from vendor.	0.218	0.278	0.129	-0.185	0.150
The PoS is easy to integrate with.	0.312	0.397	0.138	0.168	-0.184
The commission paid is justified.	0.099	0.042	0.137	0.915	-0.258
Sales have improved after installation.	0.089	0.068	0.128	0.826	0.312
Installation of PoS system	0.351	0.694	0.068	0.206	0.348
Will continue to use the system.	0.147	0.685	0.589	0.335	0.214
Small merchant preference	0.367	0.432	-0.068	0.086	0.058
Customer preference	0.327	0.108	0.589	0.589	0.584

model. Moreover, to verify the appropriate classification of each variable with the corresponding latent variable, the cross loadings between variables and latent variables were computed (Table 8).

Conclusion

This paper examines the adoption of point-of-sale (PoS) system among small merchants. The small merchants struggled much after demonetization, for which PoS could have been a possible antidote.

Using the SEM framework, the focus of the study is mainly on the structural model rather than on the measurement models in order to identify the important aspects of the PoS adoption by the small merchants. The data collected were analyzed by using factorial analysis minimum residual method.

From the analysis, it is seen that although organizational characteristics are more important, the most significant variable identified is the affordability and sustainability for small merchants when they adopt the point of sale system.

Although the initiatives of enterprises regarding PoS are good and important, they appear to have a low effect. This seems to be because of the lack of knowledge about the importance of the PoS with small merchants. The reasons vary with different business shop types, location, and age groups of owners.

As a matter of fact, from the analysis, it is identified that basically, only the small merchants who knew about the technology and realized how it helped them in reducing the cash transactions and bring accountability were using the PoS ; whereas, others were nowhere near using PoS. So, a strong knowledge about the PoS system and its effects is vital to change this business trend.

Managerial Implications

The study helps in understanding the needs of small merchants. It clearly brings out the following :

(1) Banks would be well-served to have easier means to identify small merchants who would be interested in PoS machines. Awareness campaigns could be taken up to help easy technology adoption. This would go a long way towards building aptitude towards a cashless economy.

(2) mPoS service agents could identify the most popular smartphones and partner with companies to help with the installation and use of the PoS machines.

Limitations of the Study and Scope for Further Research

The study is based on a sample size of only 221 small merchants located in Chennai city only. A larger sample collected across various business districts and cities would help in generalizing the factors for understanding PoS adoption. This could also include more demographic details across various groups.

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