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Effect of point of sales (POS) utilization on effective demand for agricultural commodities in stores and supermarket in Akure metropolis, Ondo state, Nigeria

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ABSTRACT

Point of Sales (POS) was one of the promising e-payment methods introduced by the monetary regulatory body (CBN) in Nigeria, following its capability of curbing many challenges of financial bodies and the economy. The purpose of this study was to determine the effect of point of sales (POS) utilization on effective demand for agricultural commodities in stores and supermarket in Akure Metropolis. Multistage sampling procedure was used in selecting one hundred and sixty (160) consumers paying for agro-commodities through POS for the study. Data were collected through the use of structured interview schedule and were analyzed using descriptive statistics and regression. The study identified convenience as the main reason for utilizing POS and also found sex, age, household size, monthly income and effect of POS as factors influencing effective demand of agro-commodities using the POS. The study however concludes that the use of POS increases the demand for agro commodities.

Keywords: *Point of sales (POS), Agricultural commodities, Effective demand, Akure metropolis*

INTRODUCTION

Transactions, demands and purchase inarguably are daily and reoccurring phenomena in every society. The mode of payment can be traced back to the primitive system known as “barter system” where people pay for services and goods through exchange of goods and services possessed by each party and accepted for exchanged. However, following the challenge of mutual coincidence in wants of the two parties, there was a great metamorphosis into the use of money which is a generally accepted way of exchange of goods and services and payment for the same. The recent development was the introduction of several e-payment methods which was aimed at reducing the dependence on cash based economy which was found to be risky and difficult because money outside the banks cannot be subjected to regulatory and operational procedures (Adeoti 2013).

Many nations of the world have developed an effective and efficient payments system whose transactions are required to guarantee and sustain their economic development. One of such in Nigeria is the POS, following the introduction of the cashless policy in Nigeria. A point of sales (POS) is the point at which a retail transaction is finalized, usually coinciding with the moment a customer makes a payment in exchange for goods and services using his or her debit/credit card instead of cash. It is a device allowing the use of payment cards such as debit cards at a physical point of sale in making payments for transactions or demands made. Hence, this made it advantageous following its convenience and speed of operation.

According to the report from the apex money regulatory body in Nigeria (CBN 2011), the e-payment system has helped to solve many of the associated challenges arising in the country ranging from the exuberant cost arising from frequent printing of currency notes, currency sorting, cash movement, keeping large amount of cash, security cost of checking high incidences of robbery among others (Akerejola,2017).

Agricultural sector is the major producer of food in the country and with great potential of improving the economy of the nation as evident in its contribution to the national GDP. Food been a major necessity and basic want for all human in the society, makes agricultural products one of the products on high demand in stores and supermarkets globally. Since money is a common bond between the seller and the buyer, serving as the settlement and clearing agents for all transactions. Therefore the importance of investigating the means through which consumers transacts in getting their desired products in stores and supermarket cannot be overemphasized.

However, despite the overwhelming superiority of electronic payment options, business-to-business transactions are still predominantly consummated in Nigeria with the use of cash and to

a limited extent bank's cheque (CBN 2007). In spite of the globally accepted promising payment system with its attested advantages for both consumers and financial institutions and in the transitioning from the cash-heavy to a cash-lite economy in Nigeria, Nigerian consumers and merchants apparently still esteem "in-person-banking" as a preferred method for money transactions and payment making. (NIBSS 2015). Hence, in order to bridge the knowledge gap in the disparity of substitution of cash for electronic payment system especially POS, this research was conducted.

The main objective of the study is to determine the effect of the use of point of sales on effective demand for agricultural commodities in stores and supermarket.

The Specific Objectives were to:

1. describe the socio-economic characteristic of consumers paying for agro-commodities through POS;
2. identify reasons for use of POS by debit card users;
3. identify the factors which enhance effective demand for agro-commodities;
4. identify the constraints facing the use of POS and
5. ascertain consumer's level of satisfaction with POS payment method.

MATERIALS AND METHODS

The study was carried out in Akure Metropolis, the largest city and capital of Ondo State, Nigeria which lies within the tropical zone in the rain forest region of South Western part of Nigeria. It is located between latitude $72^{\circ} 15'N$ of the equator and Longitude $50^{\circ} 15'$ on the Meridian. Multi-stage sampling technique was used to select respondents for this study. In the first stage purposive sampling was used to select Akure City in Ondo state because of the highest number of supermarkets and stores in Akure Metropolis. In the second stage the snowball random sampling was used to select supermarket and stores based on the availability and the use of point of sales (POS) payment system. The third stage involves an accidental selection of one hundred and sixty (160) respondents from the stores and supermarkets. Data for the study were collected from the respondents using structured interview schedule and the data collected includes the socio-economic characteristics of the consumers paying for agro-commodities through POS, effects of POS use on consumer's demand for agricultural commodities, reasons for use of POS and constraints facing the use of POS.

The reasons for use of POS by debit card users were measured by considering various reasons why the respondents could decide to utilize the POS. A dichotomous response Yes = 1, No = 0 was used to identify the reasons for this technology utilization by each respondent. Descriptive statistics (Friedman and Kendall's Mean Rank for the ranking) was used to analyze this. To identify the constraints facing the use of POS, list of possible constraints were developed, a 3 point likert-type scale with: not a constraint = 0, minor constraint = 1 and major constraint = 2 was used to identify the constraints. Mean statistic was used to analyze this and the ranking of the constraints was done using the Friedman and Kendall's mean ranking.

To ascertain consumer's level of satisfaction with POS payment method, respondents were asked to give their judgment on the level of satisfaction derived from the utilization of the payment method, a 4 point likert-type scale with: very satisfactory = 4, just satisfactory = 3, fairly satisfactory = 2 and poorly satisfactory = 1 was used to ascertain the respondents satisfactory level of the POS payment system. Descriptive statistic was used to analyze.

To determine the factors influencing effective demand for Agro – commodities using POS, multiple regression analysis was used. The regression model is specified as follows; Multiple Regression Model which was slated to capture the following explanatory variables (Xis) on Q

$$Q = (X_1, X_2, X_3, \dots, X_8) \dots\dots\dots(1)$$

While the explicit form is stated below,

$$Q = \rho_0 + \rho_1 X_1 + \rho_2 X_2 \dots\dots\dots + \rho_x X_n \dots\dots\dots(2)$$

Where;

Q = Effective demand (Proportion of purchased items that is paid for in naira)

X₁ = Income (in naira)

X₂ = Educational level

X₃ = Sex

X₄ = Age (in years)

X₅ = Household size

X₆ = Marital status,

X₇ = Payment Method (POS = 1, non-POS = 0)

u = error term

Data collected were fitted into four OLS model form and the best result was selected based on the R square value.

RESULTS AND DISCUSSIONS

Socio-Economic Characteristics of Respondents

Results in Table 1 showed that 66.3% of the respondents were female while the remaining 33.7% were male indicating that women were more involved in the purchase of agro-commodities for their homes since it is generally perceived as their duty. 53.7% of the respondents were married, 24.4% was single, and 12.5% were widows and widowers while the remaining 9.4% were divorced, this implies that Married and single people patronized the supermarket more to purchase agro-commodities than widows and divorcees. Also, the data revealed that 36.3% of the respondents were between the ages of 31-40 years, 20.6% were between 41-50 years, 22.5% were between age 21-30, while 16.9% and 3.7% fell between 51-60 years and 61-70 years respectively. This implies that 79.4% of the total respondents were between the age of 21-50 years, which mean that the young and middle-aged represents a significant proportion of the e-payment (POS) users in the study area. This finding is consistent with the findings of Adeoti (2013) and Barkhordari *et al.* (2017) that majority of people involved in the utilization of Point of Sale terminal and other e-payment options are within the age of 18-40 and 21-50 in their respective studies.

The table further indicated that majority (95.0%) of the respondents had formal education; with 65.6% of the respondents with a tertiary educational level. This implies that there is the tendency for adoption of electronic payments system especially POS with people of higher education following the centrality of education as a determinant of adoption decisions. This result corroborates the finding of Mwiya (2017) where level of education was significantly associated with e-banking/payment use intention and actual adoption. Also, in the result of Adeoti 2013, the educational levels of majority of the point of sales terminal users were at the level of tertiary education and above. The household size of the respondents as presented in table 1 showed that 58.0% of the respondents had household sizes ranging from 1-4 while the remaining 42.0% had a household size of between 5 and 7 persons. This means that the household size of the respondents was relatively small. Table 1 also revealed that 40.6% of the respondents had monthly income range of ₦90001-₦180000, 25.0% had income of ₦180001-₦270000, 18.6% had income of ₦10000-₦90000 and 15.6% gets an income of ₦270001-₦360000 monthly. The mean of the

respondents' income was ₦123,717.95. This indicated that the respondents earned reasonably enough and should live above poverty borderline.

Table 1: Socio-Economic characteristics of respondents (N=160)

Socio-economic characteristics	Frequency	Percentage (%)
Sex		
Male	54	33.7
Female	106	66.3
Marital Status		
Single	39	24.4
Married	86	53.7
Divorced	15	9.4
Widow/widower	20	12.5
Age (Years)		
21-30	36	22.5
31-40	58	36.3
41-50	33	20.6
51-60	27	16.9
61-70	6	3.7
Level of Education		
Tertiary Institution	105	65.6
Secondary School	31	19.4
Primary School	11	6.9
Adult Education	5	3.1
No Formal Education	8	5.0
Household Size		
1- 4	93	58.0
5 -9	67	42.0
Monthly income		
10000-90000	30	18.6
90001-180000	65	40.6
180001-270000	40	25.0
270001-360000	25	15.6

Source: *field survey, 2018*

Reasons for Utilization of POS Payment System

Result in table 2 showed the ranking of the respondents' reasons for utilizing POS as a payment system using Friedman and Kendall's mean rank which was both the same following apriori knowledge of specification which is significant. The results indicated that the highest ranked reason for the use of POS is convenience with a mean score of 5.17, this is closely followed by speed with mean score of 5.04, reduced stress of carrying huge cash ranked third with mean score 4.97, safety ranked fourth (mean score =4.34), reduced bank trips ranked fifth(mean score =4.30), avoidance of ATM charge by other banks and change issue ranked sixth and seventh respectively with mean score of 4.27 and 4.00 respectively. These findings are congruent with the position of Tella (2012) and Tella and Abdulmumin (2015), where they synthesized the technology acceptance model to explain and predict the satisfaction of e-payment system where the result revealed that speed of the technology among others has high correlation with respondents satisfaction and they affirmed perceived speed, security and convenience as antecedents of e-banking/payment acceptance in Nigeria. Also Kahn (2010), Okeke *et.al.*, (2017) identified convenience, security and privacy as significant dimensions influencing e-banking services quality and usage.

Table 2: Friedman and Kendall’s Mean Rank of Reasons for POS Utilization by the Respondents

Reasons	Mean Rank	Position of Reasons
Safety	4.34	4 th
To avoid ATM charges by other banks	4.27	6 th
Change issue	4.00	7 th
Stress of carrying huge cash	4.97	3 rd
Reduction of bank trips	4.30	5 th
Speed	5.04	2 nd
Convenience	5.17	1 st
Accountability	3.90	8 th

Source: *field survey, 2018*

Factors Influencing Effective Demand for Agro – Commodities Using POS

The result of the linear regression analysis presented in Table 3 revealed that income ($t = 6.973$; $p = 0.000$) is positively significant and influence effective demand. This is in conformity with the economic principle of demand which states that, disposable income is a factor affecting demand other than price, *ceteris paribus*. Sex ($t = 2.253$; $p = 0.026$) and Age ($t = 3.572$; $p = 0.001$) also showed a positive influence on effective demand which implies that sex of the respondents and their age had a positive significant relationship with their demand for agro-commodities using the POS payment system.

Household size ($t = -2.032$; $p = 0.045$) had a negative influence on effective demand for agro-commodities. This could be explained by the fact that as the household size increases and income is fixed; there is a tendency for the household to opt for other cheaper substitute outside the supermarket where POS payment system is not been utilized. This is consistent with the law of demand that quantity demanded is affected by other exogenous factors other than price. Effect of POS ($t = 2.070$; $p = 0.040$) was discovered to have a positive relationship with effective demand of agro-commodities. This implies that demand for agro-commodities would increase in supermarkets where POS payment is available and used.

The regression diagnostics tables indicated that about 66.9% of the variations in effective demand; was attributable to changes in the independent Variable such as sex, marital status, income, Effect of POS, household size, level of education and age. With an adjusted R square of 0.646(64.6%), the model fitted the data and only 35.4% of the effects on the effective demand is explained by other factors not captured in the regression model.

Table 3: factors influencing consumer's effective demand for agro-commodities using POS

Variable	Coefficients	T-value	Sig. (P value)
(constant)	-8180.281	-1.956	.053
Sex	3514.567	2.253	.026
Marital Status	390.051	.403	.688
Educational level	-1196.288	-1.546	.125
Age	3756.119	3.572	.001
Household Size	-1454.441	-2.032	.045
Monthly income	.097	6.973	.000
Effect of POS	1551.849	2.070	.040
Dependent variable: consumer’s effective demand for agro-commodities			
R Square = 0.669; R²=0.646; F-value = 2.361 ; $p \leq 0.05$= significant			

Source: *field survey, 2018*

Constraints Mitigating the Use of POS

Table 4 showed the ranking test values for both Friedman and Kendall which were found the same. This is consistent with apriori knowledge of the specification which was significant. The result

indicated that the most challenging constraint to the use of POS was network failure with a leading score of 4.53. This result agrees with the finding of NIBSS (2015) in its survey that posited that the foremost issue and challenge facing POS adoption in Nigeria and in Lagos Malls specifically is connectivity difficulties and POS malfunctioning constraint. This was closely followed by limited number of POS with mean score of 4.42. This was also confirmed in the NIBSS report that the ratio of POS per merchant store to the numbers of customers that are willing to pay through the POS e-payment is very low. Other constraints faced in the utilization of POS ranked by the respondents in descending order include; transaction decline with mean score of 4.39, power outage with mean score of 4.04, unavailability of POS with mean score of 3.66, closed account with mean score of 3.54 and failed card recognition with mean score of 3.43 which ranked least.

Table 4: Friedman and Kendall’s Mean Rank of constraints mitigating respondents of Utilization POS

Constraints	Mean Rank	Position of Reasons
Unavailability of POS	3.66	5 th
No card recognition	3.43	7 th
Limited number of POS	4.42	2 nd
Closed account	3.54	6 th
Network failure	4.53	1 st
Transaction decline	4.39	3 rd
Power outage	4.04	4 th

Source: *field survey, 2018*

Opinion on the Level of Satisfaction with POS Use

The level of satisfaction by respondents using POS payment system in the purchase of agro-commodities is presented in figure 1. This showed that 54.1 % of the respondents were very satisfied with the use of POS as a payment method, 40.8% indicated that the POS payment system is just satisfactory while the few remaining 3.4% and 1.7% claimed that the POS use was fairly satisfactory and poorly satisfactory; respectively. This could be a basis for justification and promotion of the use of POS since majority (94.9%) of the respondents indicated their favorable disposition to the satisfaction derived from the utilization of the POS as a payment method. The satisfactory level of the users was in agreement to the findings of Adeoti and Oshotimehin 2012 where they asserted that majority of the respondents were satisfied with the utilization of POS as a means of payment and transaction.

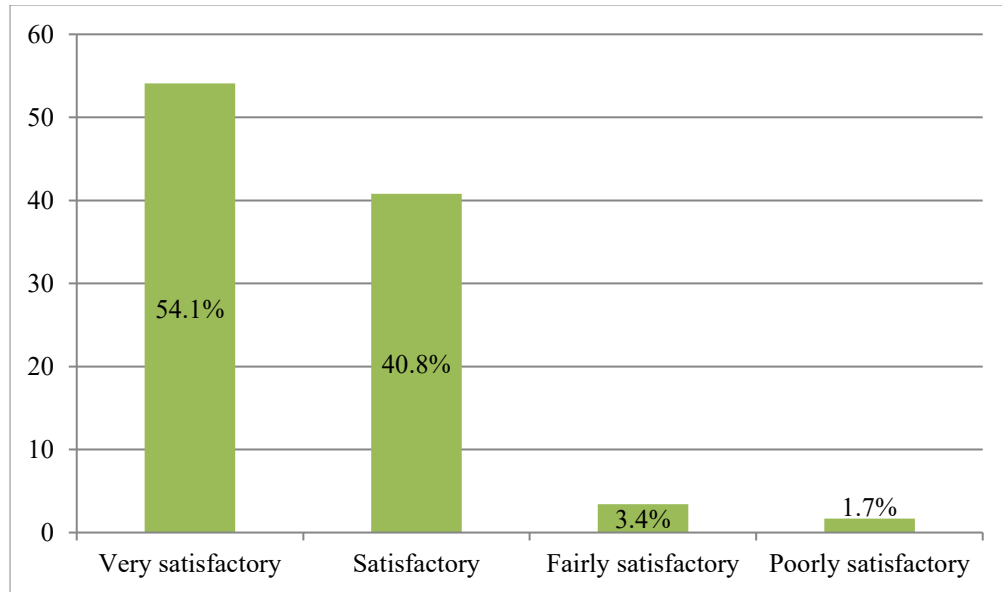


Figure 1: Satisfactory level of Respondents with POS utilization

CONCLUSION

The study determined the effect Point of Sales (POS) utilization on effective demand for agricultural commodities in stores and supermarket in Akure Metropolis, Ondo state, Nigeria. The respondents were found to be literates as seen in their level of education and with majority of them still in their active age. Also, convenience and speed of operation was identified as the high ranking reasons for the utilization of POS by respondents. Sex, age, Household size, monthly income and effect of POS were all shown to be factors influencing effective demand of agro-commodities using the POS. The respondents indicated their high level of satisfaction with the utilization of POS and therefore, the study concluded that the use of POS increases the demand for agro commodities thereby leading to increasing profit for marketing firms that have the POS facility.

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