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(EFFECTS OF PAYMENT SYSTEMS ON DOMESTIC HOUSEHOLD SAVINGS IN NIGERIA)

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Abstract : This study investigate the impact of the various payment systems on household savings. The study adopted the ex-post factor research design. Other preliminary tests were carried out to check data normality and colinearity and Auto Linear Regression analysis was used.. Annual time series secondary data for 11-years period (2009-2019), collected from the Central Bank of Nigeria 2020 Statistical bulletin were used. The dependent variable is household savings, while the independent variables included cheque, volume of automated teller machine(ATM) transactions, web-pay, mobile-pay and point of sales(POS) respectively. The research findings show there exist a bi-directional relationship between payment systems and savings in Nigeria. The results recorded from the study agree with existing findings and theories and they all agree there is strong relationship between household savings and payment channels in the Nigeria. It is therefore recommended that the government should make policies that will improve the use of diverse electronic alternative payment channels with the aim of enhancing household savings, which will positively impact economic growth. Additionally, adequate regulatory architecture should be put in place to ensure that the negative fallouts of the use of electronic payment channels are minimized. This is with the view to making them more acceptable to the people for the growth of savings, the economy and investments.

1.0 INTRODUCTION

1.1 Background

It is believed that Savings is necessary for capital accumulation and enough condition for growth and capital accumulation is almost synonymous with saving, therefore, the route to growth is then one of increasing savings and smoothing consumption (Deaton, 1991). Savings is one of the key relevant macroeconomic variables in any economy. Its impact on the rate of capital accumulation, productivity and the degree of dependency of a nation on foreign capital and foreign ownership of domestic assets cannot be overemphasized. High level of domestic saving will accelerate the rate of investment, enhance productivity and hence, economic growth. A country's level of savings or its saving rate relative to other countries can be used as a yardstick for measuring its growth prospect. As noted by summer (1986) increasing domestic savings rate is tantamount to enjoying fast productivity growth and success in international competition. It is no accident that Germany, France, United States and Japan with savings rates three times ours have enjoyed very high productivity growth rates over the last fifteen years (Afolabi and Mamman, 1994).

There is little doubt that one important area a country needs to look into when faced with economic crisis is the saving-consumption behaviour. Consumption and saving have attracted wide range of theoretical and empirical research, nevertheless, the varied empirical tests on the impact of a number of economic factors have turned up largely with different results. This may be attributable to variety of reasons, prominent among which is the multiplicity of methodological approaches adopted by different

researchers, different types of data utilized, as well as country-specific reasons. There is need to bridge the huge gap in the geographical spread of reported research findings on the behaviour of aggregate savings in Nigeria. This issue has, however, not received adequate research attention. Specific investigations into this area are sketchy (Pinto, 1987; Afolabi and Mamman, 1994; Ikhide, 1994; Nyong, 1997, Adam, 1998; and Odusola, 1999) and incidentally there is an inadequate understanding of the issues.

Sustainable economic performance is at the heart of every responsible government financial and economic policies. The health of the economy is usually measured by its performance. Central to economic performance is the financial payment system in place. In the highly competitive marketplace, variety of Electronic Payments System (EPS) have been introduced to facilitate and fast track payments system. The electronic payments system plays a very crucial role in the economy, being the channel through which financial resources flow from one segment of the economy to the other. It therefore represents the major foundation of the modern economy.

In Nigeria, a number of these platforms include but not limited to Automated Teller Machine (ATM), Point of Sale (POS), Internet (web-based), Mobile Payment, NIBSS Instant Payment and NIBSS NEFT. Note that NIBSS stands for Nigeria Inter-Bank Settlement System and NEFT stands for NIBSS Electronic Fund Transfer. While ATM, POS, internet payment and mobile payment services have been available in Nigeria since 2006, NIBSS instant payment and NEFT were introduced in 2012. Nevertheless, the use of electronic payments system in Nigeria has increased tremendously. EPS is designed to offer efficient, reliable and secure payments system critical to sound financial system, efficient financial markets, economic growth and development process. It is also designed to drive the engine of growth, reduce barriers to trade, increase geographical reach and increase capital flows. EPS is a tool for engaging more populace, creating additional savings, encourage movement from paper-based to electronic payment system and ensure global competitiveness.

EPS is designed to offer comfort from home, availability of banking services 24/7, efficiency, security, convenience and real time notifications. The CBN has placed the potential cost saving of between 50-70 per cent from economy of scale effects and reduced friction from electronic payments system. Furthermore, EPS enables commerce to operate more efficiently and this happens in four ways:

(a) Convenient access to resources. EPS gives consumers immediate access to all of their financial resources – funds on deposit or a line of credit – to be used to pay when goods or services are required such as groceries or a taxi ride without stopping to visit an ATM;

(b) Less cash at home. Most cash transactions create spare change that often leaves the economic system, driving down consumption. Card payments keep this money in consumers' accounts to be spent at a later date;

(c) Reduces the gray economy. Cash payments are sometimes left undeclared as income by retailers. Cards can increase taxable income by creating an electronic audit trail; and

(d) Reduced risk of fraud. Inherent in many electronic payment networks is the guarantee of payment for merchants and liability protection for cardholders in the case of fraud. These protections bolster confidence in the system, which can lead to greater overall consumption, particularly for high-value transactions.

It can be established there is a nexus between savings, payment systems and economic growth and there is need to study the effects of the payment systems on savings growth since savings impact on investment, wealth and health of the economy.

5 channels of payment system was examined for 11 years for their effects on savings growth and they include Cheque, Automated Teller Machine (ATM), Point of Sales (POS), Webpay, and Mobile Pay. These systems help reduce the cost of cash to the Nigeria banks and help stabilize the financial institutions that spent over N192BN on cash management in 2012 alone (RTC Services, 2013).

This is a slight departure from the works of Onipe Adabenege Yahaya published in International Journal of Management and Economics(IJME), 2022 who examined the Electronic Payment System in relation to economic growth. The need to look at the Payment System in relation to Savings, which is a major Macro–Economic factor in this study, is therefore imperative.

Nigeria is a large country with a growing population of over 200 million with a population growth rate of between 6-7%. Prior to the advent of electronics payment systems, the primary means of payment is cheques. The entry of mobile telecommunications and networks brought about the eventual introduction and development of the Nigeria the of electronic payment systems .

There have been argument that with the introduction of these payment platforms, withdrawals from customers' accounts are made easier and so less money available for savings. Others are of the opinion that with the preponderance of the payment systems, majority of Nigerians who had no confidence in the

banking sector began to come forward to deposit funds in their accounts, thereby reducing customer cash held at home.

1.2. Research Objective

The study helps to investigate whether such channels which make access to bank easier help increase household savings significantly or reduce household savings.

The objective of this Study is to establish the effects of the various payment systems in Nigeria on Household Savings in Nigeria between 2009 and 2019.

Specifically, the objectives of the study is

I. To examine the effects of cheque as a means of payment on household savings in Nigeria
II. To examine the effects of Automated Teller Machines (ATM) on household savings in Nigeria
III. To examine the effects of Point of Sales (POS) on household savings in Nigeria
IV. To examine the effects of Webpay on household savings in Nigeria and
V. To examine the effects of Mobile Pay on household savings in Nigeria.

1.3. Research Questions

i. What is the effect of cheque as a payment channel on household savings?
ii. What is the effect of ATM on household savings in Nigeria?
iii. What is the effect of POS on household savings in Nigeria?
iv. What is the effect of webpay on household savings in Nigeria?
v. What is the effect of mobile pay on household savings in Nigeria**?**

1.4 Research Hypotheses

In line with the research questions raised earlier, the following research hypotheses were formulated

Ho_1: Cheque usage did not significantly affect Savings in Nigeria
Ho_2: ATM did not significantly affect savings in Nigeria
Ho_3: POS did not significantly affect savings in Nigeria
Ho_4: Webpay did not significantly affect savings
Ho_5: Mobile Pay did not significantly affect savings in Nigeria.

2.0 Conceptual Review

2.1 SAVINGS

English Chambers Study Dictionary define savings as money set aside for future use, while Pan Dictionary of Economics and Commerce view savings as the converse of consumption, that is an individual may either consume or save his/her disposable income. Saving becomes available when an individual refrains from consumption. Thus, saving is a sacrifice of current consumption for capital accumulation which leads to investment and subsequently additional output that can be used for consumption in future. It is important to clarify that saving does not necessarily means making deposits at banks or financial institutions. It is sufficient to increase one's cash holding by refraining from consumption. Gross national savings is also defined as the residual of what is consumed from gross domestic income. In a simple income-expenditure model, the economy is in equilibrium when investment is equal to saving. Furthermore, there is need to distinguish between saving and savings. Saving is a flow while savings is a stock. This means that saving is the rate of change in savings per time period. Savings, being a stock is cumulative amount put aside over time. In symbolic terms if

S is equal to savings,
^ is change,
while t is time,
then saving (s) is equal to: Saving (s) = ^s/dt,

2.2 Payment System

Payment system is seen as a financial system supporting transfer of funds from suppliers (savers) to the users (borrowers), and from payers to the payee, usually through exchange of debits and credits among financial institutions. It consists of a paper-based mechanism for handling cheques and drafts, and a paperless mechanism (such as electronic funds transfer) for handling electronic commerce transactions. The payment system occupies an important place in the development of a country's economy; infact the level of development of a country's payment system is a reflection of the state or condition of the country's

economy. The concept payment system has different meanings among writers. The definition ranges from a simple definition to a more complex definition. It is commonly defined as payment system as an operational network - governed by laws, rules and standards - that links bank accounts and provides the functionality for monetary exchange using bank deposits. It is also seen as payment system is referred to as the interbank settlement system, which is a contractual and operational arrangement that banks and other financial institutions use to transfer funds to each other

This present paper analyzes the question of how selected payment systems affect household savings in Nigeria. Institutional differences are in explaining observed differences in official saving ratios between the United States and other industrialized countries, and how sensitive this difference is to alternative definitions of saving and income.

2.2.1 Cheque as a Payment Instrument

Cheques are physical debit instruments issued by the account holders to pay self, or third parties on an overdraft account or current account with unique features such as numbers, bank codes, account holder's name, date, security number and other unique security features. The instrument can be used intra bank or inter bank through the Central bank Clearing system. With the coming of electronic payment system, use of cheques has drastically reduced in popularity.

2.2.2 Automated Teller Machine (ATM

Automated teller machine is a computer controlled device that dispenses and provides other services to customers who identify themselves with a personal identification number (PIN). The physical carriage of cash as well as frequent visit to the banks is being reduced. The principal advantage of ATM is that it dispenses cash at any time of the day even as it needs not to be located within the banking premises but in stores, shopping malls, fuel stations etc. unlike the traditional method where customers have to queue for a very long period of time to withdraw cash or transfer funds.

2.2.3 Point of Sale Terminal (POS)

This mode of e-banking handles cheque verification, credit authorization, cash deposit and withdrawal and cash payment. It enhances electronic fund transfer at the point of sales. Thus customers account would be debited immediately with the cost of purchase in an outlet such as a petrol station or supermarket. The implication of this is that customers can make payment for goods and services without necessarily coming in contact with physical cash as the purchase price would be debited on the buyer's card and credited on the seller's account, Akhalumeh, and Ohiokha, (2012).

2.2.4 Webpay

It is a unique electronic payment type which involves the use of smart cards. Smart cards are devices with embedded integrated circuit being used for settlement of financial obligations. It can be used as credit card, debit card and even ATM cards. There are also virtual cards with same features of physical cards. The power of these cards lies in its sophistication and acceptability to store and manipulate data as well as handling of multiple applications on one card securely.

2.2.5 Mobile Pay

This mode of e-banking primarily uses mobile phones as the electronic devices. Mobile phone gives customer the opportunity to operate their account with bank as long as their phones and network services provider support the SMS (short messaging service) which would enable the customer check account balance.

2.3 Theoretical Review

There are many theoretical approaches to savings however; the important and common ones are:

i). the absolute income hypothesis due to Keynes (1936) which assumes that saving is simultaneously determined with consumption, in the consumption function framework. It posits a positive relationship between savings and income through marginal propensity to consume/save.

ii). The second known as the permanent income theory postulates the view that consumption/savings is a function of permanent income (current income plus future income, wealth, etc.).

iii). Another theoretical approach is the life-cycle hypothesis which postulates that every individual spends in relation to what he conceives his normal income to be. In a particular year he may regard his income as low, in the good years he will save the excess and in the bad years he will run down his accumulated savings (Stiegeler and Thomas, 1982).

The second and last approaches can be combined into one because they are similar; jointly referred to as the life cycle/permanent income hypothesis.

2.4 Empirical Review

Dost, Illyas and Rehman (2015) investigated the relationship between factors affecting consumer buying behavior towards online shopping with focus on the influence of five major variables that were derived from literature- trust, time, product variety, convenience and privacy, on consumer buying behavior (dependent variable) to determine how consumer buying behavior was affecting online shopping trends. The statistical analysis of the data showed that trust and convenience were greatly impactful on whether people choose to buy online or through brick and mortar stores, while privacy had a lesser influence of buying behavior.

Fatmasari, Waridin and Amin (2019) investigated the use of e-money and debit cards in consumption expenditures and how it affects the consumption expenditure. The research applied a quantitative method by using a questionnaire as an instrument to collect the data. Further, the data were then analyzed by applying multiple linear regression models. The result revealed that partially using e-money in students' consumption behavior had a negative and an insignificant influence, while using debit cards had a positive and significant influence on students' consumption behavior. Thus, based on the F test results, it is proved that using e-money and debit cards together have a significant impact on students' consumption behavior.

Goin (2019) established the effect of mobile banking on saving practices amongst residents of Kapsabet town, Kenya with the specific objectives being; to establish the effect of perception of savings through the mobile phone, income on savings practices, adoption of mobile banking and incentives to save available to mobile banking users on the saving practices. Descriptive research design was used in the study to enable a generalization of the research findings from the target population. The results obtained were analyzed qualitatively and quantitatively using Microsoft excel and regression analysis tool. Quantitative data was interpreted and inferences were made and presented using charts, tables and percentages. The study found that mobile banking has improved the saving practices of Kapsabet town residents and this was mainly made possible by the improved technology on both devices and on the mobile money services, the cost of service, perceived ease of use, convenience and security of transactions have collectively enhanced the uptake of mobile banking services.

Kikulwe, Fischer and Qaim (2014) examined the use of mobile money among smallholder farmers in Kenya also found that mobile money used increased farmers' incentives to save for future purchases of farm inputs, and as a result, farmers who used mobile money sold larger quantities of their produce and made higher profits than non-users These studies imply that mobile money use increases the capacity of the rural poor to save.

Komal and Bhavna (2019) investigated the use of e-wallets and their impact on current savings and spending habits of youth of Udaipur city. An exploratory and descriptive research design has used to gain an insight into saving and spending pattern of youth. For the collection of primary data, a structured questionnaire was developed based on a Likert scale with personal interview method. Results of the study revealed that youths were habitual towards use of digital payments such as net banking and e- wallets. Paytm has the highest number of users among youth in Udaipur city but they are still using cash as medium of transactions because of the reason of non-acceptability of E-Wallets by vendors.

Mafimisebi, Akinbobola, Mafimisebi, Ugbedeojo and Olarinde (2019) determine the effect of point of sales (POS)utilization on effective demand for agricultural commodities instores and supermarket in Akure Metropolis. Multistagesampling procedure was used in selecting one hundred and sixty(160) consumers paying for agro-commodities through POS forthe study. Data were collected through the use of structuredinterview schedule and were analyzed using descriptive statisticsand regression. The study identified convenience as the mainreason for utilizing POS and also found sex, age, household size,monthly income and effect of POS as factors influencingeffective demand of agro-commodities using the POS. The studyhowever concludes that the use of POS increases the demand foragro commodities.

Okifo and Igbunu (2015) examined the adoption of E-payment system in Nigeria highlighting its economic benefits and challenges. They noted that the arrival of the internet has taken electronic payments and transactions to an exponential growth level. Consumers could purchase goods and services from the

internet and send unencrypted credit card numbers across the network, which did not provide much security and privacy. But a wide variety of new secure network payment schemes have been developed as consumers became more aware of their privacy and security. The benefits of e-payment are unquantifiable in that it would galvanize Nigeria into a cashless society and elimination of fear of the unknown. Though e-payment is faced with challenges, like public acceptability, lack of uniform platform being, operated by the banks, lack of adequate infrastructure and issues of security, with the proper use of e-payment system, corruption which is a cancer in government arena will be holistically addressed.

Skogqvist (2019) investigated whether the use of mobile money affects the savings patterns of individuals that are vulnerable to financial exclusion, particularly the low-income earners, low-educated, women and rural habitants. Studying the case of Kenya, this study used data from the 2016 FinAccess Household Survey (N=8,665) that was designed to track and measure the drivers, growth and impact of mobile money use in Kenya. Logistic model and the 2SLS IV regression were used as the empirical estimation method for testing the statistical significance of the correlation between mobile money usage and the savings behaviors of the individuals. The results showed that users of mobile money are 1.96 more likely to have a savings product than those that do not use mobile money, and that the propensity for users of mobile money to save for emergencies and for future events is 1.44 and 1.27 times higher, respectively, as compared to the non-users. These findings suggest that individuals that use mobile money perceive it as a trustworthy, efficient and reliable store of value especially making savings for future use. This analysis also finds statistically significant evidence suggesting that mobile money use significantly increases the propensity to save for individuals in demographic groups that are more susceptible to the unique challenges that lower accessibility to formal financial services.

Suri and Jack (2016) found that mobile money increased the savings behaviors and financial resilience behaviors of female-headed households where majority of the women reported using their savings to change their occupational choice from agriculture into business. These findings indicate that mobile money can positively affect the saving behaviors of women.

Trütsch (2020) explored the impact of contactless payment on consumers' demand for cash at an early stage of diffusion. The specific devices under investigation were debit and credit cards, in which the feature is embedded. A novel balanced panel dataset drawn from representative surveys on consumer payment behavior in the USA from 2009 to 2013 was analyzed to account for unobserved heterogeneity in cash usage. The results show that contactless credit and debit cards exert no statistically significant effect on cash usage after controlling for unobserved heterogeneity. Consumers' decision to use contactless payment was an endogenous choice. Card-affined individuals replace conventional card payments with contactless card payments. Hence, the overall effect on cash usage remains unaffected.

Worako (2018) assessed the impacts of ATM services on the customers saving rate in the Commercial Bank of Ethiopia, Akaki Branch. Beside the major objective customers' satisfaction and prominent constraints and challenges of ATM services were assessed. To achieve the desired objectives of the study, 42 ATM service users were selected by using the purposive sampling techniques to fill the questionnaire and other information gathered from the branch office. The collected data were organized, analyzed and interpreted by using simple descriptive statistics and results presented by graphs and tables. Based on the respondents, the ATM service was found to have negative influence on their saving rate. The customer satisfaction on the services delivered by the ATM in the Commercial Bank of Ethiopia had moderately satisfied their needs.

The evidence on the affiliation between mobile money and savings behaviors is mixed evidence. For instance, a randomized experimental study conducted in Mozambique by Batista and Vicente (2017) found that farmers that used mobile money increased their savings and investments in farm produce as compared to mobile money non/users.

Survey results from Burkina Faso by Ky, Rugemintwari and Sauviat (2017) showed that mobile money use increased the propensity to save for emergency purposes among low-educated, rural residents, low-income earners, female and irregular income earners However, the study found no statistically significant correlation between using mobile money and the likelihood to save for future predictable events.

3.0 RESEARCH METHODOLOGY

3.1 Research Design

This research applied the quantitative research approach by accessing data from the CBN Statistical Bulletin from 2009 – 2019. It made use of ex post facto data on savings and payment systems collected in monetary terms where the dependent variable was savings while independent variables were the use of cheque, ATM, POS, Web payment and Mobile money payment platforms.

3.2. Sources of Data:

Data for this work is wholly sourced CBN statistical Bulletin published in 2020 with secondary data for 2009 to 2019.

Data for this work is wholly sourced CBN statistical Bulletin published in 2020 with secondary data for 2009 to 2019.

Table 1: Data from Central Bank of Nigeria Statistical Bulletin 2020.

YEARS	SAVINGS	CHEQUE	ATM	POS	WEBPAY	MOBILE PAY
2009	5,707.99	29,166,780	109,161,646	918,256	2,703,516	1,809,251
2010	5,941.37	33,973,919	60,133,610	1,072,426	1,601,086	1,156,533
2011	6,526.69	37,718,585	347,569,999	2,100,673	1,932,355	3,649,374
2012	8,021.19	12,045,833	375,487,756	2,555,045	2,276,464	2,297,688
2013	9,603.45	14,145,839	295,292,940	9,402,255	2,900,473	15,812,435
2014	11,451.59	15,365,565	400,102,507	20,817,423	5,587,081	29,156,406
2015	11,763.92	13,466,461	433,587,623	33,720,933	7,981,361	43,933,362
2016	14,034.23	11,719,847	590,238,934	63,715,203	14,088,247	47,053,252
2017	14,464.64	10,808,983	800,549,099	146,267,156	28,991,097	47,804,561
2018	14,559.43	9,019,278	875,519,307	295,890,167	50,815,901	94,653,446
2019	16,893.19	7,275,237	839,819,922	438,614,182	103,497,007	377,265,208

3.3 Model Specification

The regression model for the study was:

$SAVINGS = \beta_0 + \beta_1 CHEQUE + \beta_2 ATM + \beta_3 POS + \beta_4 WEBPAY + \beta_5 MOBILEMONEY + \mu$

where,

SAVINGS = amount of savings for the period

CHEQUE=the amount of transactions using cheques

ATM= the amount of transactions using ATM

POS= the amount of transactions using POS

WEBPAY= the amount of transactions using webpay platforms

MOBILEMONEY= the amount of transactions using mobile money platforms

β_0 = the regression constant

$\beta_1 = \beta_5$ = the regression coefficients of the study variables

μ=error term.

3.4 Techniques of Data Analysis

This data was analysed with the help of STATA software package. Descriptive statistics and inferential statistics such as regression analysis technique were used to analyse the data. Checks for data normality were carried out using Shapiro-Wilk test and skewness and kurtosis. Multicollinearity was checked with the help of variance inflation factor (VIF), the time series data was checked for auto-correlation using Durbin-Watson statistics, the check for equal variances in the residuals was conducted with Breusch and Pagan/Cook-Weisberg test for heteroskedasticity while Ramsey RESET was used for model specification.

Decision rule:

Accept Ho if t-value is within ±1.96 otherwise reject it.

3.5 Statistical tools and econometric models

3.5.1 Descriptive Statistics

The data collected for this study was first analysed using descriptive statistics as presented below:

Table 1: Descriptive statistics of the study variables

Variable	Obs	Mean	Std Dev	Min	Max
SAVINGS	11	10,815.24	3,917.28	5,707.99	16,893.17
CHEQUE	11	1.77e+07	1.06e+07	7,275,237	3.77e+07
ATM	11	4.66e+08	2.08e+08	6.01e+07	8.76e+08
POS	11	9.23e+07	1.46e+08	918,256	4.39e+08
WEBPAY	11	2.02e+07	3.16e+07	1,601,086	1.03e+08
MOBILE MONEY	11	6.04e+07	1.04e+08	1,156,533	3.77e+08

Source: STATA output, 2022.

Table 4.1 shows the descriptive characteristics of the variables. It shows that the amount of savings as a dependent variable has a mean of N10,815.24 million. The mean value of N10,815.24 million indicates that Nigerians have accumulated huge savings in the formal financial sector. This implies that Nigerians have a lot of money that is saved in the formal financial sector of the economy as captured by the CBN statistics. The minimum and maximum values were N5,707.989 million and N16,893.17 million with a standard deviation value of N3,917.281million. This suggests that the values of savings accumulated by Nigerian in the formal financial sector fluctuates considerably during the study period,. This shows how savings have grown astronomically over the years following the introduction of different payment platforms in the formal and informal financial sectors of the economy.

For the different payment platforms which are the independent variables, the table shows that the mean amount of payment through cheque used during the period was N17.7 trillion and a standard deviation of N10.7 trillion. With a maximum and minimum values of N37,7 trillion and N7.275 trillion respectively, it can be seen that the wide variations in the amounts of cheques used represent the growing usage of cheques even though the other payment platforms have been accepted by Nigerians. The data also suggests that the people have enjoyed considerable amount of the usage of cheques amidst Nigeria heading towards a cashless policy.

The ATM payment platform as depicted by the table shows a mean value of N258 trillion. This indicates that the Nigerians have used the payment platform a lot as seen in the huge amount that is paid through the ATM. The maximum and minimum values are N876 trillion and N60.1 trillion respectively. This shows wide variations amongst ATM users in Nigeria and hence depicting the growth as one year passes. This is confirmed by the standard deviation value of N280 trillion. This implies that ATM usage has grown geometrically from year to year as Nigerians seek to adhere to the digital economy as advocated by the CBN.

The table also shows the result of the mean statistic for POS transactions of N92.3 trillion across the different categories of Nigerians even POS is one of the agency banking tool that encourages financial inclusion in the economy. This indicates that Nigerians use huge amountsof transactions through POS thereby, ensuring that all Nigerians both in the rural and urban areas have a means of making payments and savings. The maximum and minimum values of this payment platform are N493 trillion and N0.913 trillion respectively. This suggests that the values of POS payments vary considerably during the period under investigation as confirmed by the standard deviation value of N146 trillion. This implies that the values of POS transactions are widely spread implying that there is steady growth in the use of POS payment platform within the period under investigation.

Furthermore, web payment platform as used by Nigerians shows a mean value of N20.2 trillion with maximum and minimum values of N103 trillion and N1.601 trillion. This implies that the web payment platform has attracted few Nigerians as compared with the other cashless payment platforms. It suggests that many Nigerians are not aware of this kind of payment platment as it involves the use of internet connectivity.. However, like the other variables, the values of web payment system are also volatile as shown by the standard deviation value of N31.6 trillion. This shows that the usage of web payment platform has also grown steadily over the study period.

Lastly, the mean value of mobile payment system is N60.4 trillion among Nigerians with the maximum and minimum values of N377 trillion and N1.157 trillion respectively. This implies that mobile money users have very high and very low values within the study period giving a very wide fluctuation of N10.9 trillion. This implies that the values of web payment system are widely dispersed and suggests that the values have increased significantly from 2009 to 2019.

3.5.2 Regression Analysis

Before the application of regression analysis, the data was subjected to different tests to ensure that the data do not lead to spurious results. Such tests include the Ramsey RESET test for model specification as shown below:

Table 2 Ramsey RESET result

F(3,3)	1.92
Prob>f	0.3029

Source: STATA output, 2022.

Since the prob>f is 0.3029 and is less than 0.05, the model is correctly specified.

Table 3: Breusch-Pagan/Cook-Weisberg test for heteroskedasticity

Chi2(1)	0.23
Prob>chi2	0.6341

Source: STATA output, 2022.

As the prob>chi2 is 0.6341 which is less than 0.05, the model is not heteroskedactic.

Table 4: VIF and Durbin-Watson statistics

VIF mean value	7.99
Durbin-Watson (5,11)	1.546

Source: STATA output, 2022.

Table 4.4 shows that VIF mean valueof 7.99 is less than 10 and shows the absence of multicollinearity problem among the independent variables under consideration, also, the DW statistics value of 1.546 in close to 2 and shows the absence of autocorrelation among the residuals of the data set under investigation.

Table 5: Shapiro-Wilk test for normal data

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
LNSAVINGS	11	0.90964	1.463	0.702	0.24149
LNCHEQUE	11	0.90074	1.607	0.883	0.18874
LNATM	11	0.87121	2.085	1.403	0.08034
LNPOS	11	0.93064	1.123	0.209	0.41739
LNWEBPAY	11	0.90445	1.547	0.809	0.20935
LNMONEYPAY	11	0.93478	1.056	0.097	0.46123

Source: STATA output, 2022.

From table 5, all the values of prob>z are less than 0.05. this shows that the data set are normally distributed.

Table 6: Skewness and Kurtosis test for normality

Skewness/Kurtosis tests for Normality

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	joint adj chi2(2)	joint Prob>chi2
LNSAVINGS	11	0.5846	0.1423	2.94	0.2300
LNCHEQUE	11	0.3117	0.6041	1.48	0.4781
LNATM	11	0.0748	0.3582	4.27	0.1183
LNPOS	11	0.9272	0.1326	2.71	0.2582
LNWEBPAY	11	0.2772	0.5396	1.81	0.4052
LNMONEYPAY	11	0.9379	0.3939	0.79	0.6732

Source: STATA output, 2022.

Table 6 shows that the skewness, kurtosis and their joint probabilities are all greater than 0.5 which shows that the data set are normally distributed.

Table 7: Regression result of the study

SAVINGS	Coefficient	Std Error	T	prob>/t/
CHEQUE	-2.53e-09	1.77e-09	-1.43	0.213
ATM	1.76e-11	3.66e-12	4.82	0.005
POS	5.17e-10	2.41e-10	2.15	0.084
WEBPAY	-4.25e-08	1.76e-08	-2.39	0.062
MOBILEPAY	1.40e-09	5.53e-10	2.54	0.052
Cons.	7.63e+8	3.71e+08	2.06	0.095
Obs.	11			
prob>f	0.0007			
R^2	0.9720			

Source: STATA output, 2022.

From table 7, with 11 observations, the value of prob>f is 0.0007 which is less than 0.05. This shows that the model is fit for regression analysis. The R-square value of 0.9720 means that the five payment platforms accounts for 97.20%of variations in savings behavior of Nigerians leaving just 2.80% of such variations to be accounted for by factors outside this study. This implies that the payment systems are major determinants of savings in Nigeria.

For the effect of each independent variable on the dependent variable, a N1 increase in the use of cheque will infinitesimally reduce savings by N2.53e-09. This implies that the use of cheque will reduce the propensity to save among Nigerians. However, a N1 increase in using ATM will increase savings marginally by N1.76e-11. This implies that the use of cheque as a payment platform will enhance the likelihood of increased savings amongst Nigerians. Meanwhile, a N1 increase in POS will increase savings by N5.17e-10. This implies that the use of POS can marginally increase the saving behavior of Nigerians. Also, a N1 increase in Web payment platform will reduce savings by N4.26e-08. This implies that the use of POS as a payment platform has the potentials of reducing the propensity to save amongst Nigerians. Furthermore, a N1 increase in mobile payment will increase savings by N1.40e-09. This implies that an increase in mobile money payment has the ability to improve the propensity of savings amongst Nigerians. Finally, if these payment systems are not used, Nigerians will improve savings by N7.83e+08 and suggests that a point of no withdrawal, an impossible situation that is unlikely to happen.

3.6. Test of hypotheses

The hypotheses stated in chapter one of this study are tested in this section.

Ho_1= The use of cheque as a payment platform has no significant effect on savings of Nigerians.

Using table 4.7, the t-value of cheque is -1.43 which is within the region of non-rejection of the null hypothesis. Therefore, the null hypothesis is accepted that the use of cheque as a payment platform has no significant effect on savings of Nigerians

Ho_2= The use of ATM as a payment platform has no significant effect on savings of Nigerians.

Using table 4.7, the t-value of ATM is 4.82 which is outside the region of non-rejection of the null hypothesis. Therefore, the null hypothesis is rejected and the alternative accepted that the use of ATM as a payment platform has significant effect on savings of Nigerians.

Ho_3= The use of POS as a payment platform has no significant effect on savings of Nigerians.

Using table 4.7, the t-value of POS is 2.15 which is outside the region of non-rejection of the null hypothesis. Therefore, the null hypothesis is rejected and the alternative accepted that the use of POS as a payment platform has significant effect on savings of Nigerians.

Ho_4= The use of Webpay as a payment platform has no significant effect on savings of Nigerians.

Using table 4.7, the t-value of Webpay is -2.39 which is outside the region of non-rejection of the null hypothesis. Therefore, the null hypothesis is rejected and the alternative accepted that the use of Webpay as a payment platform has significant effect on savings of Nigerians.

Ho_5= The use of Mobilepay as a payment platform has no significant effect on savings of Nigerians.

Using table 4.7, the t-value of Mobilepay is 2.54 which is outside the region of non-rejection of the null hypothesis. Therefore, the null hypothesis is rejected and the alternative accepted that the use of Mobilepay as a payment platform has significant effect on savings of Nigerians

4.0 RESULTS AND DISCUSSION

From the test of hypotheses, the following finding can be discussed:

I. Test of hypothesis one revealed that the use of cheque as a payment platform has negative insignificant effect on savings of Nigerians. This result is in line with that of Fatmasari, Waridin and Amin (2019), Tritsch (2020) and Komal and Bhavna (2019) who in their respective studies found that either payment system has partially negative insignificant effect on savings or that payment platform was unpopular among users. This may be because people are reluctant to use cheque as a payment platform but when it is used can reduce peoples' savings behavior.

II. Test of hypotheses two showed that the use of ATM has positive significant effect on savings. This result is in consonance with those of Goin (2019), Fatmasari, Waridin and Amin (2019) andSkogqvist (2019) who found that ATM or mobile banking has positive significant effect on savings. On the other hand, the studies of Woroko (2018) and Tritsch (2020) found that ATM has a negative effect on savings and moderately satisfied customers' needs or insignificant. The positive effect of ATM on savings may imply that even though the use of ATM is expected to reduce savings of customers, not all customers can use it due to network failures or none availability of banks in some localities. This prevents most customers from using ATMs thereby increasing savings and making it relevant as a payment option.

III. Test of hypothesis three shows that POS has positive and partially significant effect on savings behavior of Nigerians. These findings is in line with those of Goin (2019) and Skogqvist (2019) who also discovered that mobile payment systems can improve savings significantly. Meanwhile, Mafimisebi, Akinbobola, Mafimisebi, Ugbedeojo and Olarinde (2019) found that POS increases demand for expenditure. Even though POS is everywhere, issues such as trust and corruption among Nigerians havedeterred many people who ordinarily would have POS more so that it attracts some charges higher than conventional payment methods.

IV. Test of hypothesis four reveals that webpay has negative and partially significant effect on savings. This result agrees with those of Fatmasari, Waridin and Amin (2019) and Komal and Bhavna (2019) who also found e-money to be negatively related to savings and insignificant. Meanwhile, the study of Goin (2019) found that mobile banking increases savings practices of customers. Webay may have negative effect on savings because most of withdrawals through this medium involve large sums of money which reduces a customer's propensity to save.

V. Lastly, test of hypothesis five indicates that mobile money has positive partially significant on savings behavior of customers. This result is in line with those of Batista and Vicente (2017), Suri and Jack (2016) and Kikulwe, Fischer and Qaim (2014) who also found mobile money platform to have positive significant effect on savings. Ky, Rugemintwari and Sauviat (2017) found mobile money to be significany to savings for emergencies. Meanwhile, the same Ky, Rugemintwari and Sauviat (2017) also found mobile money to be likely insignificant for future use.

5.1 Conclusion

From the findings of the study which sought to examine the effect of different payment platforms on savings in Nigeria, it can be concluded that these payment platforms are a major contributor to customers' propensity to save. This is because the payment systems were able to account for 97.2% of variations in

savings of Nigerians. That all the payment platforms are very relevant to the savings behavior of customers except cheque due to it not been an on-line payment platform. This is against the cashless economy of the CBN as most account holders now seem not to have cheque books let alone use them for transactions. This has made possible settlement of bills and cash transfers on apps and web such that minimal usage of cash is tolerated by Nigerians amidst insecurity and excessive sending that is attributable to always holding raw cash.

5.2 Recommendations

From this conclusion, the study recommends that policy makers and implementers such as the CBN and DMBs should sustain those policies that prevent carrying along huge sums of money by customers. This will reduce their spending habits and improve their propensity to save. As the DMBs always encourage their customers to use alternative withdrawal methods instead crowding themselves inside the banking hall, customers should learn to accommodate this new trend so that the goal for maintaining a cashless society would be achieved. All stakeholders such as schools and other governmental agencies charged with the duty of collecting money for products and services should as a matter of necessity limit the usage of raw cashnot only to ensure that customers pay at their convenience but also ensure transparency and accountability as well guarantee the ease of doing business.

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