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Electronic Banking and Economic Productivity in Nigeria

Eleberi Ebele Leticia

***Abstract*— This research paper electronic banking and economic productivity in Nigeria. Secondary data were sources from CBN statistical bulletin Real Gross Domestic Product (RGDP) and electronic banking (ATM, POSand Mobile banking) for the period of 2009 to 2019. The collected data was analysed using ordinary least square (OLS) regression technique. Findings of the research revealed that ATM and MPS has positive and significant relationship with economic productivity while POS shows negative and inverse relationship with economic productivity. The paper concludes from its findings that electronic bankinghas mixed effect on economic productivity of Nigeria. Thus, while ATMand mobile banking leads to improvements in economic productivity, same cannot be said for point of sales machines which has a negative effect on economic productivity.The study recommends that regulatory authorities should investigate further on the usage of point of sales since it asserts negative effect on economic productivity in Nigeria. The study also proffers that there is need for improvement on the performance of automated teller machine and mobile payment system since they assert positive and significant impact on economic productivity.**

***Index Terms*— Electronic banking, Economic Productivity, e-payment system.**

I. INTRODUCTION

Deposit money banks in Nigeria have been in the forefront of incorporating information and communication technologies into their banking operations. This has been accompanied, for the most part, by a growth in the usage of electronic payment methods in the nation. The Nigeria banking industry has seen a phenomenal increase in the use of electronic banking channels, such as ATMs, POS machines, Internet (online) banking services, and mobile banking transactions, thanks to the use of automated teller machines (ATMs), POS machines, Internet (online) banking services, and mobile banking transactions. These have been attributed with several benefits, including a reduction in the related costs and dangers associated with cash-based banking so as to increasing the speed of complete transaction in real-time not minding the distance between parties to the transaction [1],[2].

Despite the hurdles, electronic banking transactions have received favorable reviews in Nigeria. The constant increase in electronic banking activity throughout the years attests to this. According to the Central Bank of Nigeria's (CBN) statistical report (2019), the volume of ATM transactions climbed from 109.162 million in 2009 to 373.488 million in 2012. This is a rise of over 244 percent in just over three years. The bulletin also estimates an increase in volume to 875.52 million transactions in 2018, representing a 702 percent rise over a ten-year period (2009 to 2018). In the same vein, the usage of POS has grown significantly over time, from 0.918 million transactions in 2009 to 295.89 million transactions in 2018 - a growth rate of more than 32000 percent. For the period under consideration, mobile payment usage increased by more than 4700 percent, from 1.81 million transactions in 2009 to 87.1 million transactions in 2018. In comparison, the use of cheques has decreased by around 69 percent during the same time period, from 29.167 million transactions in 2009 to 9.019 million 2018.[3]

It is clear from the above that the use of electronic banking is rising while the use of non-electronic systems (cheque books) is declining. The use of electronic banking has brought benefits to both banking institutions and bank consumers. According to [3] in [4], the automation of banking transactions has enhanced data processing and accessibility for rapid management decision making. As a result, operating expenses will be reduced, and the ability to track fraudulent transactions will improve. According to [3] in [5] , electronic banking has lowered transaction costs while increasing transaction speed. Electronic banking has also reduced the incidences of robbery occasioned by the need for businesses and individuals have to hold large amounts of cash which is a target of armed robbers.

It is simple to deduce from the foregoing that the adoption and deployment of electronic banking systems has significantly enhanced banking operations in Nigeria, both for banking institutions and banking consumers. However, it is unclear if the improvement brought about by the use of electronic banking has had any influence on bank performance in terms of asset growth. This is because the deployment of electronic banking comes at a high cost to banks in terms of staff, equipment, and the introduction of new processes. As a result, the purpose of this research is to examine the impact of electronic banking adoption on the assets base of Nigerian banks.

II. STATEMENT OF THE PROBLEMS

The implementation of electronic banking comes with numerous problems which may make it challenging for the deposit money banks to implement. The most critical of these challenges is that infrastructure. Implementing a seamless electronic banking requires the installation of hi-tech

Eleberi Ebele Leticia, Department of Computer Science, IMO State University, OWERRI, Nigeria

information and communication technology infrastructure which requires huge cash outlay. Furthermore, electronic banking requires uninterrupted electricity supply and for the most part, this has become an intractable problem in Nigeria. Another problem associated with its implementation is the low internet penetration in the country especially in the rural areas [6]. [4] also identified some of the problems of implementing electronic banking in Nigeria to include increase in internet fraud, high maintenance costs for equipment, low literacy level among the populace and manpower requirements.

The review of related works on electronic banking and economic productivity shows that there is an ongoing debate on the effect of electronic banking and economic productivityin Nigeria. In the study of [4], who examined the relationship between electronic banking and economic productivity in Nigeria, discovered that electronic banking has significant impact while [8] study shows that electronic banking has significant effect on productivity. This conflicting finding create concern to ascertain using up to date data on the authors position our study will support.

III. OBJECTIVE OF THE STUDY

The central objective of this study is to investigate on electronic banking and economic productivity in Nigeria:

i. examine the effect of Automated Teller Machines (ATMs) transactions and economic productivity.
ii. determine the effect of Point of Sales (POS) Machine transactions and economic productivity
iii. evaluate the effect of Mobile Phone Banking transactions and economic productivity

IV. HYPOTHESES OF THE STUDY

Ho_1: Automated Teller Machines (ATMs) transactions do not significantly affect economic productivity

Ho_2: Point of Sales (POS) Machine transactions do not significantly affect economic productivity

Ho_4: Mobile Phone Banking transactions do not significantly affect economic productivity

V. THEORETICAL REVIEW

A CONCEPT OF ELECTRONIC PAYMENT SYSTEM

Payment systems involves the operational network governed by laws, rules and standards which connects bank accounts and provides the necessary functionality of monetary exchange using bank deposits. It is the infrastructure comprising of institutions, organizations, instruments, rules, standards, procedures and technical processes established to make possible the transfer of monetary value between different parties discharging agreed obligations [9]. [10] defined Electronic payment system as a form of inter-organizational information system for monetary exchange, linking many organizations and individual users. This may require complex interactions between the stakeholders, the technology and the environment. Payment systems can be physical using tradition methods or electronic (virtual) using information and communication systems to deliver the necessary services.

Thus, electronic payment systems are the information communication technology-based systems established to facilitate the monetary transactions between parties using bank-based platforms. In Nigeria, the operational electronic payment systems include Automated Teller Machines (ATMs) Point of Sales (POS) machines, Mobile Banking and Internet (Online) Banking Platforms. The last two options promise more convenience and wider use as the services can be assessed on electronic devices owned by the individual customers.

Electronic payment systems boast of certain benefits over their physical counterparts. First is the speed of completing transactions the distance between parties notwithstanding. Another benefit is that of convenience as parties can conduct financial transactions from the convenience of their bed or even the bathroom. Again, electronic payment systems can handle much larger volumes of transactions given the same time allocation than the physical payment systems. Furthermore, financial transactions through electronic systems are easier to track making transaction easier to audit and monitor such transactions for fraud or management decision making. Given these benefits, banking institutions can benefit immensely from establishing electronic systems as a viable replacement for the traditional payment systems.

According to [5] electronic payment systems in addition to their convenience and safety also have a significant number of economic benefits which include mobilizing savings and ensuring most of the cash available in the country are with banks. Thus, by being convenient and cheap to operate, electronic payment systems have the potential to improve financial inclusion and deepening for a developing country like Nigeria where savings mobilization remains a problem.

VI. EMPIRICAL REVIEW

[3] 2019 investigated the effect of electronic payment systems on the performance of commercial banks in Nigeria, data was collected from secondary sources specifically from the CBN statistical bulletin and comprised of data on the assets base of commercial banks and internet banking (ATM, POS, Internet banking and Mobile banking) for the period of 2009 to 2019. The collected data was analyzed using ordinary least square (OLS) regression technique. Findings of the research showed that there is a statistically significant positive relationship between ATM transactions and the assets base of commercial banks in Nigeria.

[11] (2016) focused on the impact of ATM, POS, web/Internet and mobile e-payments adoption on banks' profitability in Nigerian. Secondary data were obtained from annual report and accounts of ten commercial banks for the period 2005 to 2012 and were analysed using panel logistic regression. The results showed that when bank adopt epayment systems, their performance level, such as gross margin, profits after tax, return on assets and return on equity

changes. This is reflected in the positive association between adoption and gross earning of banks. Further, adoption of the four e-payment instruments like ATM, WEB, POS and Mobile banking influenced performance indices measured by return on assets, gross margin and profits after tax of the sampled banks.

[12] (2015) examined the impact of electronic payments channels on economic development of Nigeria. Data for the study was collected by sampling the opinion of a sample 98 current and savings accounts holder of six commercial banks in Ekiti state. The data was analyzed using inferential statistics specifically with the use of chi-square. The results revealed that electronic payment channels had impacted on the economy and therefore contributing positively to national development.

[5] (2015) investigated the economic benefits and challenges of adoption of electronic payment system in Nigeria. The study concluded that 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 however, with the proper use of e-payment system, corruption which is a cancer in government arena will be holistically addressed.

[13](2014) carried out an investigation on electronic payment system in Nigeria with a focus on the implementation and constraints using a sample of 200 respondents while analysis was carried out predominantly on the primary data retrieved from the respondents. Militating constraints towards success of the system were identified in the study and also suggested recommendations for effective implementation of the system. The findings of the research showed that regulatory framework and policies should be introduced by government that will help in consolidating e-payment systems through suitable regulations.

[4] (2013) investigated the profitability performance of Nigerian banks following the full adoption of electronic banking system in the country. The study used data from four banks that consistently retained their brand names within the study. They tested the pre- and post-adoption of e-banking performance difference between means using a standard statistical technique for independent and that the adoption of electronic banking has positively and significantly improved the returns on equity of Nigerian banks. On the other hand, it also revealed that ebanking has not significantly improved the returns on assets of Nigerian banks.

[14] (2013) explored relationship between e-payment system and economic growth as means of reviewing current transition to cashless economy in Nigeria. Data was analysed using OLS and TSLS methods covering period of seven years from 20052012. The result indicated a significant positive relationship between e-payment system and economic growth in term of real GDP per capita and trade per capita. Only ATMs was found to positively contribute to economic growth while other e-payment channels contribute negatively. Hence they recommended thatcurrent cashless policy should be tailored towards effective e-payment system and other factors which bear much relevance on successful transition to cashless economy should be prioritized.

[15] (2013) examined the impact of electronic banking on banks' performance in Nigeria using panel data from annual audited financial statements of eight banks that have adopted e-banking and retained their brand name banking between 2000 and 2010 as well as macroeconomic control variables were employed to investigate the impact of e-banking on return on asset, return on equity and net interest margin. Findings revealed that e-banking begins to contribute positively to bank performance in terms of return on assets and net interest margin with a time lag of two years while a negative impact was observed in the first year of adoption. It was thus recommended that investment decision on electronic banking should be rational so as to justify cost and revenue implications on bank performance.

VII. METHODOLOGY

The study employed quasi experimental design to analyse data generated for bank electronic system and economic productivity of Nigerian. This study employed secondary source as the sole source of data collection. The data sourced from the Central Bank of Nigeria (CBN). The data collected (and analysed) enabled the realization of the research objectives, answering of the research questions and forming opinion of the assertions of the study's hypotheses. The quantitative data collected covered the various proxies for the dependent and independent variables of the study namely; Real Gross Domestic Product (RGDP), Automated Teller Machine (ATM), point of sales (POS) and mobile payment system (MPS), for the period of 12 years covering 2009 – 2019.

A METHOD OF DATA ANALYSIS

Multiple regression analysis Ordinary Least Square method with the aid of Statistical Package for social sciences (SPSS) was used in analysing the data gathered from secondary sources. The choice of this technique for this study is based on the uniqueness and time frame of the data collected and it give room for expressing the relationship in a mathematical form. That is, it provides an estimated equation which expresses the functional relationship between the dependent and independent; such that one variable can be predicted given the value of the other variable. Individual significance test using t-statistics (prob) was utilized in the hypothesis test. The researcher thus adjudged this technique as being suitable for the analysis of this study. However, the F-statistics was adopted in testing each of the four hypotheses of this study.

B MODEL SPECIFICATION

The regression technique adopted in this study is typified in the following linear model: $Y = f(x)$

Where: Y represents the dependent variable (economic productivity)

X represents the independent variable (Electronic services-ICT)

To capture the proxies for the variables in the three specific objectives of the study, the following two models are developed:

Mathematical model

RGDP = F(ATM, POS, MPS)

……..……...….1

Estimated model

$RGDP = \beta_0 + \beta_1 ATM + \beta_2 POS + \beta_3 MPS + \varepsilon_t$ …….....2

Where: RGDP = Real Gross Domestic Product.

ATM = Automated Teller Machine

POS = Point of sales

MPS= Mobile payment system

Where:$\boldsymbol{\beta_0}$ is the intercept of the multiple regression line

$\boldsymbol{\beta_1}$, $\boldsymbol{\beta_2}$, & $\boldsymbol{\beta_3}$ are the coefficient of the explanatory (independent) variables

$\boldsymbol{\varepsilon}$ is the stochastic variable or error term

C TEST FOR SIGNIFICANCE

To test for the significance of the collective effect of the independent variables on each of the proxies of dependent variable in the models, F-statistics will be employed. Also, the coefficient of determination (R^2) will be used in ascertaining the extent of the effect or influence of the independent variables on the dependent variables.This study adopts 95% level of reliability (confidence) to the results of the analyses. That is 5% level of significance. Thus, the decision rule for each of the tests is:

Accept H_0 and reject H_A: if P-value > 0.05

Reject H_0 and Accept H_A: if P-value < 0.05

VIII. PRESENTATION AND ANALYSIS OF RESULT

After subjecting the variables to SPSS, the following output were obtained;

Variables	Coefficient	P-value
Constant	51547.891	.000
ATM b_1	4.356	.000
POS b_2	-7.187	.004
MPS b_3	2.942	.011

Source: SPSS output (see appendix)

A DISCUSSION OF FINDINGS

The relationship between ATM and Economic productivity

The estimated result reveals the slope of automated teller machine as 4.356 which is positive and directly related to economic productivity. This implies that an increase in ATM transmission will result to adirect increase in economic productivity. This result is in line with normal expectation since the introduction of ICT in the financial system drives economic activities.

The relationship between POS and Economic productivity

The estimated result reveals the coefficient of point of sales as -7.187 which is negative and inversely relate to economic productivity. This implies that increase in POS transmission has resulted to decrease in economic productivity. This result against normal expectation since the introduction of ICT in the financial system should drives economic activities. This may be as a result of increase records of sharp practices that is associated with the usage of POS in Nigeria.

The relationship between MPS and Economic productivity

The estimated result reveals the slope of mobile payment system as 2.942 which is positive and directly related to economic productivity. This implies that an increase in ATM transmission will result to a direct increase in economic productivity. This result is in line with normal expectation since the introduction of ICT in the financial system drives economic activities.

B TEST OF SIGNIFICANCE

With respect to hypothesis one, the P-value of automated teller machine is given as 0.000 which is less than 0.05. we therefore reject the null hypothesis that ATM has no significant effect on economic productivity in Nigeria.

In testing for hypothesis two, the result reveals a P-value of 0.004 for POS which is less than 0.05. we therefore reject the null hypothesis that POS has no significant effect on economic productivity in Nigeria.

In testing for hypothesis three, the result reveals a P-value of 0.011 for MPS which is less than 0.05. we therefore reject the null hypothesis that MPS has no significant effect on economic productivity in Nigeria.

IX. CONCLUSION

The paper investigated the effect of electronic banking and economic productivity in Nigeria. Electronic banking was disaggregated into ATM, POS and MPS as ICT channels used by banking system while Real gross domestic product was used as proxy for economic productivity. The study found that ATM and MPS has direct impact on economic productivity while POS has reverse impact. The joint test revealed that all the parameter estimate has significant impact on economic productivity.

X. RECOMMENDATION

The paper therefore proffer that regulatory authorities should investigate further on the usage of point of sales since it asserts negative impact on economic productivity in Nigeria. The study also proffers that there is need for improvement on the performance of automated teller machine and mobile payment system since they assert positive and significant impact on economic productivity.

REFERENCES

[1] Kelvin, O. (2012). Mobile money for financial inclusion. Journal of Macro Finance, Africa 4(14).

[2] Tijani, J.A. &Ilugbemi, A.O. (2015). Electronic payment channels in the Nigeria banking sector and its impacts on national development, Asian Economic and Financial Review, 5(3): 521-531.
[3] Bingilar Paymaster Frank and BariweniBinaebi (2019) Electronic Payment Systems Implementation and the Performance of Commercial Banks in Nigeria EJBMR, European Journal of Business and Management Research Vol. 4, No. 5, October 2019
[4] Abaenewe, Z.C., Ogbulu, O.M. &Ndugbu, M.O. (2013). Electronic banking and bank performance in Nigeria, West African Journal of Industrial & Academic Research, 6(1): 171-187.
[5] Okifo, J. &Igbunu, R. (2015). Electronic payment system in Nigeria: its economic benefits and challenges, Journal of Education and Practice. 6(16): 56-63
[6] Massimo, C. &Gracia, J.A. (2008). Measuring payment system development. The World Bank Research Centre.
[7] Ovia, J. (2005). Enhancing the efficiency of the Nigerian payments system, Central Bank of Nigeria Policy Research, 29(1): 8-20.

[8] Summers, B.J. (2012). Payment systems-design, governance and oversight, London: Central Banking Publications
[9] Harelimana, J.B. (2018). The Role of electronic payment system on the financial performance of financial institutions in Rwanda, Global Journal of Management and Business Research: Finance, 18(1)1.
[10] Oladejo, M. (2016). E-payments adoption and profitability performance of deposits money banks in Nigeria, International Journal of Information Technology, 4(3).
[11] Tijani, J.A. &Ilugbemi, A.O. (2015). Electronic payment channels in the Nigeria banking sector and its impacts on national development, Asian Economic and Financial Review, 5(3): 521-531.
[12] Adeyelure, T.S., Pretorius, P. & Kalema, B.M. (2014). E-payment system in Nigeria: success militating factors, International Journal of Advanced Computer Research, 4(1)14: 231-235.

[13] Oyewole, O.S., Gambo, E.J., Abba, M. &Onuh, M.E. (2013). Electronic payment system and economic growth: a review of transition to cashless economy in Nigeria, International Journal of Scientific Engineering and Technology, 2(9): 913-918
[14] Oyewole, O.S., Abba, M., Gambo, E.J. &Abam, A.I. (2013). E-banking and Bank Performance: Evidence from Nigeria, International Journal of Scientific Engineering and Technology, 2(8): 766-771.