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Financial Inclusion and Financial Technology: Inclusion Indicators and e- Banking Nexus

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Abstract

This paper analysed the connection between the financial inclusion indicators (number of bank deposits, number of bank branches, number of ATM machine and size of credit to private sector) and the e-banking tool (ATM, POS, MPAY, & WEB), over the period of 2008 to 2016. The study simply used table and graphic presentation of the total value of the variables utilized, unveiling and analysing the growth among the values of the variables presented. The analysis proved that financial technological development had upward directional movement with financial inclusion. After the introduction of financial inclusion policy in 2012, there was drastic growth in the general banking transaction which brought about an increase in the use of general e-banking instruments and thus, the numbers of bank branches were reduced. In addition, financial inclusion generates motivations for e-banking innovations and the execution of new technology to satisfy customer's need. Amid other things, the study recommended that Policy makers should try to make enabling background that will improve the functioning of the banks in Nigeria as this will enable the banks to boost the values of transaction in the real time banking/e-banking that will give optimum customer satisfactions. Moreover, new sophisticated digital products will be adopted and also promote the benefits of cashless policy.

Keywords: *Financial Inclusion, Financial Technology, Indicators, e- Banking Nexus*

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Background to the Study

Financial inclusion is a means of having an access to proper financial facilities at a reasonable charge for all members of an economy, supporting primarily low-income sets (Diniz, Birochi & Pozzedon, 2011). Individuals are to access these quality product and services at a reasonable price and in a responsible manner and ensure that all people including the low-income earners enjoy these services. It refers to all initiatives that make formal financial services available, accessible and affordable to all segment of the population with particular attention to the population that has been excluded from the formal financial sector (Iqbal & Sani, 2010). The effectiveness of financial inclusion is determined by its capability of sourcing funds from surplus units to financing deficit units, as financial services include among other things, range of products such as, credit, payment, suitable designed loans, and insurance savings among others (Rajani, Bhama & Deepa, 2012).

Financial inclusion for more than a century has been widely and effectively accepted and has continued to attract global attention in development finance largely due to its capacity to drive growth and sustainability of an economy. Given that millions of people globally are excluded from formal financial services, there is a potential loss of deposits and savings which leads to the loss of investible funds and eventually the loss of capacity of the global economy to generate wealth. Access to formal financial services is widely acknowledged as means of credit creation and enhances capital accumulation raising the level of investment and eventually economic development and growth (Okoye, Adetiloye, Erin & Modebe, 2017). According to Martinez (2011), access to financial services is an important policy tool used by governments to stimulate economic growth. Broader access to financial services will mobilize greater household savings, more capital for investment, expand the class of entrepreneur and enable more people to invest in themselves and future (Zin & Weill, 2013). Financial inclusion is therefore necessary to ensure sustainability.

The quantitative indicators of financial inclusion were classified into two groups and they are as follows; Access indicators (number of bank branches, number of ATM, and number of agent banking) and User 's indicators (number of depositors, number of borrowers, average size of total deposit per depositors, and average size of total loans per borrower). Access to quality financial services will surely improve the financial conditions and living standards of these classes of persons. Studies have shown that countries with higher degree of financial inclusion tend to post higher economic growth (Mbutor and Uba, 2013). Alvaro (2017) specifically emphasized that financial inclusion does not only creates access to banking various services, but also tends to raise the purchasing power and standard of living of low-income populations. However, the emergence of country level policy mandates around financial inclusion, coupled with new international initiatives such as the G 20's Global Partnership for financial Inclusion (GPFI) have brought considerable awareness to this subject. An inclusive financial system is paramount to all aspects of an economy. It is now widely recognized as a policy priority in many countries with initiative coming from financial regulators, the government and banking industry. Legislative measures have been instituted in some countries giving rise to different regulatory frame works.

The banking system remains the major aspect of financial institution in developing countries and as well the primary channel for monetary control by the Central Bank of Nigeria (CBN) and the monetary authorities in general. Unfortunately, it is estimated that about 65% of the cash in circulation in the Nigerian economy is outside of the banking system, thus severely limiting the impact of the CBN's efforts at price and economic stabilization (CBN, 2012). Consequently, the amount of money in the form of deposits available to banks for the creation of more money is reduced. The profitability of the banks, which to a large extent depends on the amount of money at their disposal for lending, is therefore affected by the large size of this informal sector. The Central Bank of Nigeria (CBN) in collaboration with the Bankers Committee, introduced financial inclusion policy and likewise the cashless policy designed to provide mobile payment services that aim to breakdown traditional barriers hindering the financial inclusion of millions of Nigerians, secure and make convenient financial services to urban, semi-urban and rural areas across the country.

Therefore, through innovation of more sophisticated technological instruments by banks, the alternative ways to cash payments and customer baking services were enhanced. They are as follows; Cheques, Automated Teller Machines (ATMs), Mobile Money, (iv) E-transfers, and (v) Point of Sales Terminal (POS). Bank performance has implication on level of cashless policy mechanisms (Point of Sales Terminal (POS), E-transfers, Automated Teller Machines (ATMs), Mobile PAY (MPAY), & WEB) among other variables. Hence, determining the volume of digital banking transactions on daily basis. The introduction of this improved technology in turn promotes banking habit with regards to its services which directly facilitates the financial inclusion and banking performance.

Literature Review

Evans (2015) provides empirical evidence on the effects of economic and financial development on financial inclusion in Africa, using panel FMOLS for the 2005-2014 period. The study shows that economic growth has a significant positive impact on financial inclusion, meaning that African countries with higher economic growth have more inclusive financial systems. GDP per capita has a significant positive impact on financial inclusion. That is, income is an important factor in explaining the level of financial inclusion in Africa. It is, as well, established in this study, that although both economic and financial development promote financial inclusion, though the effects of economic development are much stronger. Also, inflation is negatively linked to financial inclusion, and as well insignificant across all specifications. Deposit interest rate is positively linked to financial inclusion, though insignificant. The low deposit interest rates in African countries do not encourage inclusive financial systems. Population, though positive, is insignificant. Internet has positive significant impact on financial inclusion, meaning that internet access is indispensable in a fast-moving and digital African economy. Literacy is also statistically significant, meaning that adult literacy is an important factor in explaining the level of financial inclusion in Africa. As well, Islamic banking presence and activity are associated with higher financial inclusion.

Nwankwo (2014) critically examines the sustainability of financial inclusion to rural dwellers in Nigeria using descriptive study and content analysis. The study observed that the sustainability of financial inclusion to rural dwellers in Nigeria remains the mainstream for economic growth in any country. The implication of this study is that economy cannot grow fast without proper implementation of financial inclusion to rural areas in Nigeria. The study recommended that the promotion of collaboration between Deposit Money Banks (DMBs), Microfinance Banks (MFBs) and Communication services providers for enhanced intermediation of financial services should be encouraged; there is need to educate rural dwellers on the importance of banking as it would facilitate the success of CBN financial inclusion policy and that since some of the rural dwellers preferred to keep money under their pillows at home, there should be proper enlightenment to change their orientation on financial inclusion in Nigeria.

Okoroafor, Adeniji and Awe (2018) examined the determinants of financial inclusion in Nigeria over the period of 1990 to 2016. The study employed Error Correction Model and the results showed that positive and significant relationship exist between financial inclusion and GDP per capital, broad money, and credit and internet users. Ugbene, Mohd and Ahmad (2017) assessed the effects of financial inclusion (deposit and loan) in the context of banking habits of GDP on rural population on the Nigeria covering the period of 1982 to 2014. The study employed VECM to test for the long-run and short-run relationship and the results revealed that no long-run relationship exists between deposit and loan to GDP. Finding as well showed that rural dwellers deposit and loan with rural branches of commercial banks had influence on the performance of Nigeria economy in terms of GDP. While rural dwellers deposit and loan with rural branches of commercial banks had no influence on the performance of Nigeria economy in terms of GDP in the short-run.

Segun and Onafowokan (2014) examined the financial inclusion via the use of questionnaire, the extent to which adults in Nigeria participated in financial inclusion measures as access to and use of bank accounts, mobile money and insurance services. The results showed that though access to bank accounts is high, majority of the respondents operate savings accounts. The use of money mobile money and insurance services is very small among accounts holders. Accounts opening requirements need to be reduced. Oyewo and Oyedayo (2014) examined the association between financial system, financial inclusion and economic development in Nigeria. Correlation and regression analyses were employed for the empirical analyses and the findings revealed that financial inclusion had a positive impact on economic development.

Onaolapo (2015) studied the effects of financial inclusion on the economic growth of Nigeria over the period from 1982 to 2012. Using OLS regression estimator, the findings showed that loan to rural area had positive and significant impact on poverty reduction in Nigeria. Financial deepening and broad money had positive and significant impact on economic growth. The overall results indicated that bank inclusive had significant impact on poverty reduction in Nigeria.

Yin, Xu, Chen and Peng (2019) studied the association between financial inclusion and circumstances-monetary policy and economic growth fundamentals, thus, specifically the impact of the circumstances on financial inclusion indicators through vector autoregressive method. The results showed that monetary policy had a short-term positive impact on financial inclusion factors, while the economic fundamental had negative impact. Meaning that the positive monetary policy promotes the development of financial inclusion in the short term and the sudden change of the economic situation will make it harder.

Grakolet and Pierre (2017) studied the causality association between financial inclusion and economic growth in the West African Economic and Monetary Union (WAEMU) Spanning from 2006 to 2015. The study employed the heterogeneity panel causality test proposed and the Maximal Overlap Discrete Wavelet Transform indicators. The results showed that from 2 to 4 years, there was no causality between economic growth and financial inclusion indicators. Then from 4 to 8 years a bi-directional causality existed between economic growth and financial inclusion.

Anand and Kuldip (2013) studied the determinants and impact of financial inclusion on cross-section data of Indian states within the period of 2010. The study employed the simple regression analysis for the empirical analysis and the results showed that index of financial inclusion had positive and significant impact on human development index. Also, financial inclusion index indicated positive and significant impact von per capital NSDP. Finally, the overall financial inclusion index showed a positive impact on poverty ratio. Usha and Johnson (2016) tried to analyse the extent of growth in the financial inclusiveness among the economies across the world within the period of 2011 to 2014. Correlation analysis was employed and the results showed that the financial inclusion indicators; ownership of accounts, savings, credit availability, debit card usage and gross national income GNI were positively correlated. Jiang, Tong, Hu and Wang (2019) examined the impact of the inclusive financial development index on farmer entrepreneurship in China over the period of 2004 to 2017. With static panel and dynamic panel estimation method, the results showed that their certain differences in inclusive financial inclusion development level in various provinces in China. However financial inclusion will promote farmer entrepreneurship.

Methodology

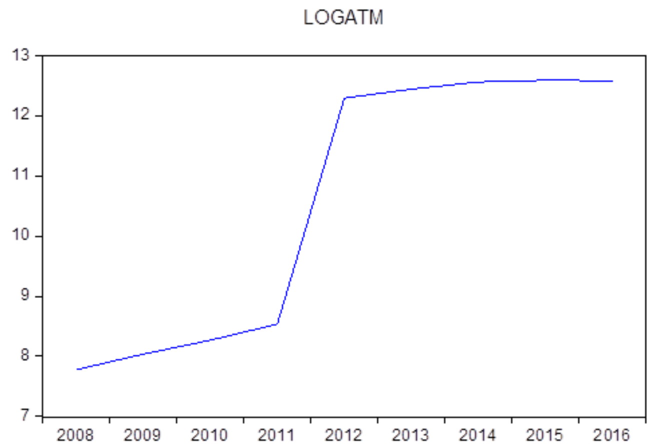
This work is a quantitative study and basically depended on analytical research design, as it graphically analysed the annual value in some selected financial technological instruments innovated by banks and the recorded volume of some financial inclusion indicators in Nigeria from 2005 to 2018. The graphical analysis relies on the dataset of Nigeria which represent the whole annual values. This comprises the sample of the total banks in Nigeria. The time series obtained from the CBN statistical bulletin was used for the study.

Analysis and Results

Table 1: Analysis of Financial Technology Instruments and Financial Inclusion Indicators Financial technology instruments

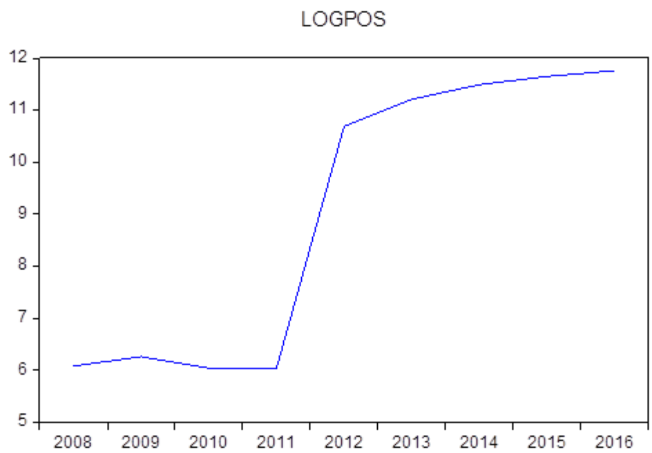
YEARS	ATM (log)Value of Transaction	POS (log)Value of Transaction	MPAY (log)Value of Transaction	WEB (log)Value of Transaction
2008	7.78	6.08	6.51	6.2
2009	8.04	6.26	5.95	6.43
2010	8.27	6.04	6.08	6.86
2011	8.54	6.04	6.28	6.56
2012	12.3	10.69	10.5	10.5
2013	12.45	11.21	11.16	11.16
2014	12.57	11.49	13.3	10.87
2015	12.6	11.65	13.41	10.96
2016	12.59	11.76	13.47	11

Figure 1.



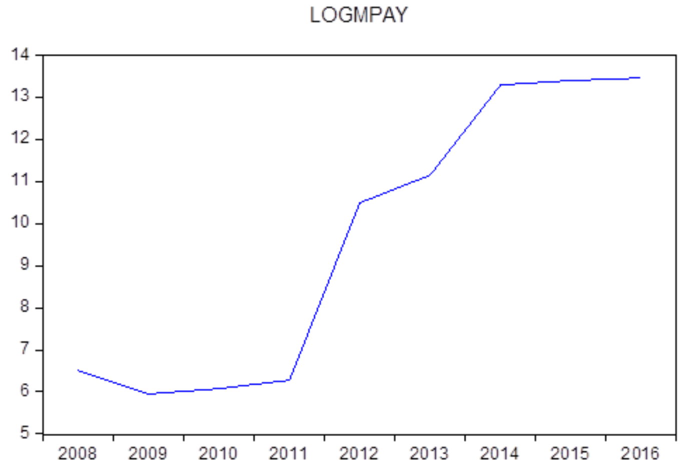
Log value of total ATM transactions from 2008 to 2016

Figure 2.



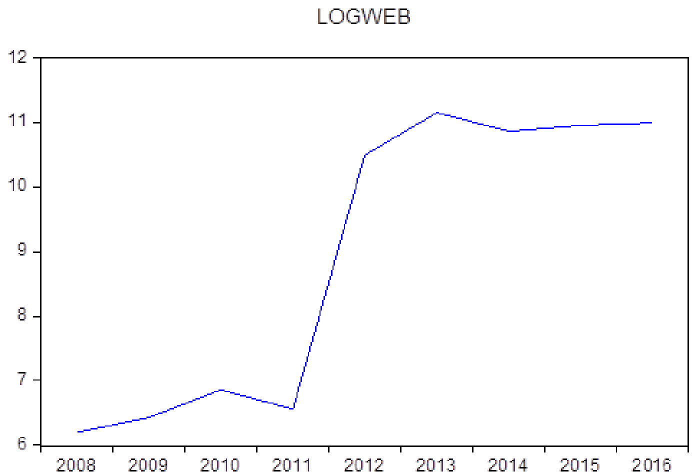
Log value of total POS transactions from 2008 to 2016

Figure 3.



Log value of total MPAY transactions from 2008 to 2016

Figure 4.



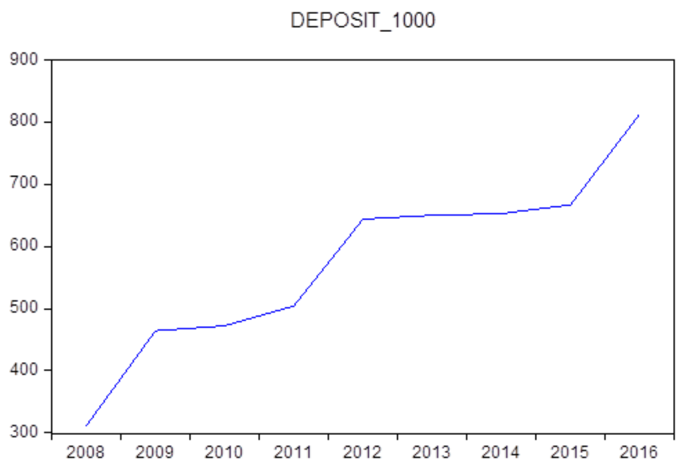
Log value of total WEB transactions from 2008 to 2016

Table 2: Financial Inclusion Indicators

Year	Number of Bank Deposits Per 1000 Adult	Number of Bank Branches Per 100,000 Adult	Size of Credit to Private Sector %GDP	Number of ATM Machine PER 100, 000 Adult
2008	311.83	6.27	20.78	8.64
2009	464.45	6.48	22.27	11.46
2010	472.61	6.56	15.63	11.72
2011	504.56	6.41	12.58	11.94
2012	644.35	5.82	11.83	11.49
2013	650.57	5.90	12.59	13.31
2014	653.20	5.61	14.49	16.18
2015	667.28	4.98	14.19	16.21
2016	813.65	4.74	15.60	16.73

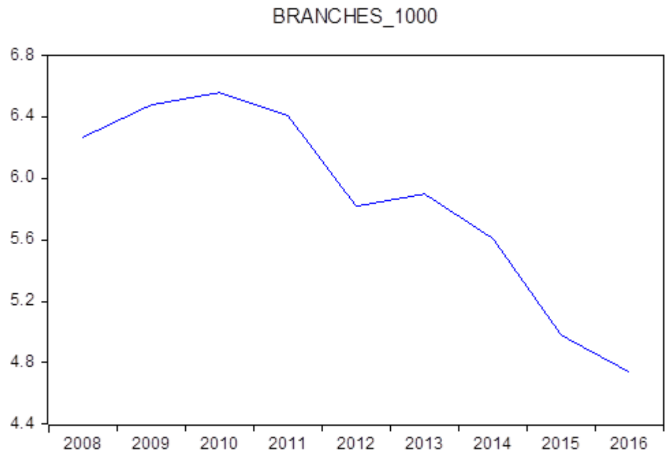
Source: CBN

Figure 5.



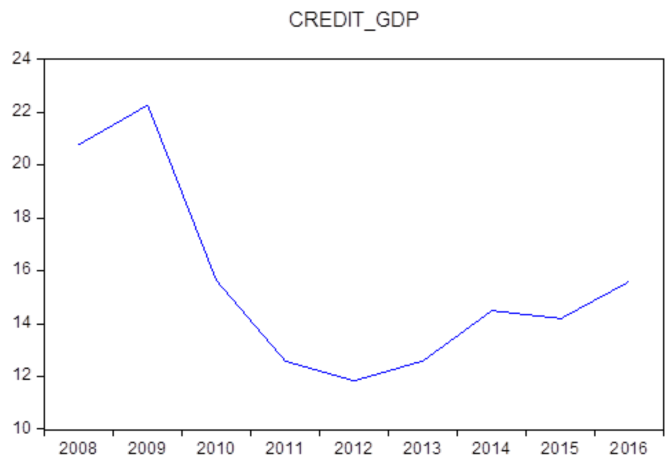
Number of Bank deposits per 1000 adult from 2008 to 2016

Figure 6.



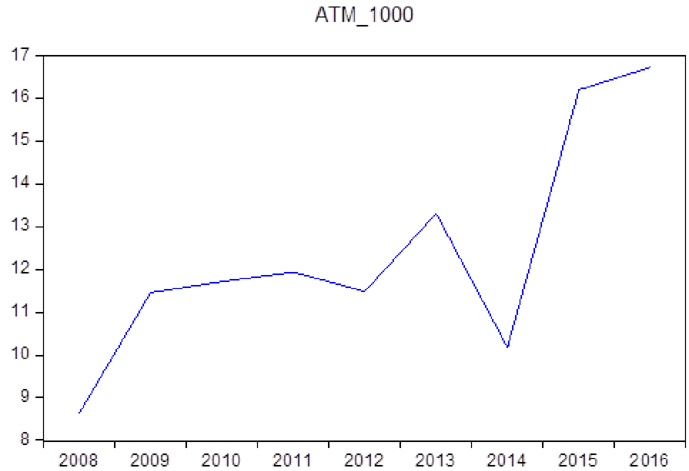
Number of bank branches per 100,000 adults from 2008 to 2016

Figure 7.



Size of credit to private sector %GDP from 2008 to 2016

Figure 8.



Number of atm machine per 100, 000 adult from 2008 to 2016

Conclusion

This paper analysed the connection between the financial inclusion indicators (number of bank deposits, number of bank branches, number of ATM machine and size of credit to private sector) and the e-banking tool (ATM, POS, MPAY, & WEB), over the period of 2008 to 2016. The study simply used table and graphic presentation of the annual values of the variables utilized, unveiling and analysing the growth among the values of the variables presented. The analysis proved that financial technological development had upward directional movement with financial inclusion.

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