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EFFECT OF DIGITALIZATION OF BANKING SERVICES ON THE NIGERIA ECONOMY

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Abstract: This paper investigates the effect of digitalization of banking services on the Nigeria economy. Specifically, this was set out to find out if specific digital banking service channels such as use of web pay and mobile pay have an effect on the economy of Nigeria. A 12 year aggregate annual digital banking service data as provided by Central Bank of Nigeria Statistical bulletin was used in this study. A multiple regression procedure was used to determine the significance of the relationship between digital banking service channels and economic performance in Nigeria. The result shows that WEB pay and Mobile Pay all exhibit a strong relationship with Nigeria economic growth. It therefore implies that digitalization of banking service channels are strongly and significantly associated with economic growth in Nigeria. This further reveals that customers in Nigeria are embracing digital methods of banking and therefore it is recommended that banks can still continue to increase awareness about the various digital platforms available to customers to explore. However, in modern digital global market and banking sector, it is recommended that banks should encourage the consumers' use of digital ways of banking including Remita, m-Cash, E-bills pay and NIBSS automated payment services.

Keywords: Digitalization, Banking Services, Mobilepay, Webpay, Nigeria

1. INTRODUCTION

Globally, banking services are becoming digital and banking touches every part of human endeavor whether, we are checking our balance, paying for an online purchase, arranging a loan. We expect the same secured and personalized experience, so it no surprise to hear that delivering a great digital experience is a top priority for today banks. Digitalization of banking services is the delivering of banking services primarily through electronic channels instead physical branches (Johannes, Denise & Vega, 2020). This does not automatically rule out digital banks from having a physical presence they can operate from.

In Nigeria, banking has transformed their operations from brick and mortar to click and mortar that is to say banking business has been redefined. The digital transformation in the industry is driven by information technology and technology has been described an agent of change in banking system across the world (Abubakar & Tasmin 2012). Digital channels such as the automated teller machine (ATMs), point of sales terminals (POS), mobile banking and internet banking among other have significant improve the service delivery by banks such that bank customers carry out banking g transactions beyond normal banking hours. Prior to the digital transformation, banking operation was characterized by travelling long distances to go to bank, waiting for the bank working hours to carry out any bank work, visiting the bank for each and every transaction and keeping track of account history through all paper statements. Others

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are delay and long queue, manually means of conducting banking transaction, manual system of posting of transaction, brick and mortar street level branches and inefficiency in the delivery of financial services. Furthermore, the country has witnessed significant efficiency and accessibility in banking service delivery due to the emergence of electronic banking. Through digital banking, bank customers can now easily make transactions pay utility bills, check their account balance or even make transfers just with a single click of a button on their smart phone, desk top or any other digital device at comfort of their homes and offices. The banks, mobile network operators, regulators and financial technology companies played the required roles in digitalization of banking business in Nigeria (Gbenga, Matthew, Julius & Idera, 2020). To secure, sustain and make digital banking services user-friendly and cost effective, there is need to improve on the infrastructural facilities and Nigeria as a country is rapidly building digital infrastructure including new payment platform (Shofawati, 2019).

However, digitalization of banking services can help in addressing pressing issues with respect to access to finance. The importance of access to finance cannot be understated; a well functioning and inclusive financial system has the gain of poverty reduction through the provision of financial safety nets. Yet financial inclusion is still an issue in Nigeria despite the number of banks and the level of competition in the industry. Available statistics reveal that about 55 percent of Nigerians were financial excluded for limited access to brick and mortar banks due to distance from dwelling place poverty, cost of banking services, irregular income and institutional exclusion (EFInA 2020). Thus, financial technology remains a major catalyst in changing the paradigm of banking services in Nigeria as this paper is set out to examine the effect of digital banking services on the Nigeria economy.

2. LITERATURE REVIEW

2.1 Digital Banking: concept and benefits

2.1.1 Concept

Today, digital banking is more important than ever in managing your finances. Digital banking simply means managing all your banking transactions either on your mobile phone, your ipad or your computer. Digital banking can also be described as the digitalization of all traditional banking activities that were historically available to customers when physically inside of a bank branch. This includes activities like money deposits, withdrawals, and transfers, checking/saving account management, loan management, bills payment and account services (Don, 2016). From the practitioner's point of view, digital banking is the providing of banking/financial services through self-service channels with very limited or no branch support. Interest and mobile banking services are the most crucial elements of digital banking. Similarly, Digital Banking is the automation of traditional banking services. Digital banking enables a bank's customers to access banking products and services via an electronic/online platform. Digital banking means to digitize all of the banking operations and substitute the bank's physical presence with an everlasting online presence, eliminating a consumer's need to visit a branch. According to Gomber, Koch, and Siering (2017), digital banking encompasses a magnitude of new banking products, banking/financial businesses, banking and finance-related software, and novel forms of customer communication and interaction delivered by financial technology companies and innovative financial service providers. Digital banking includes all products, services, technology and infrastructure that enable individuals and companies to have access to payments, savings, and credit facilities via the internet without the need to visit brick and mortar branch (Ozili, 2018).

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2.1.2. Benefits

- Digital banking has some benefits. Firstly is that digital banking can lead to greater financial inclusion, expansion of financial services to non-financial sectors, and the expansion of basic services to individuals since nearly 55 percent of Nigerians were unbanked and excluded from the financial safety net while 48.12 percent of the Nigerian population accessed the internet via mobile device (World Bank, 2021). Secondly, digital banking enables consumers to perform banking transactions from the comfort of their homes, be it an elderly person who is tired of waiting in lines or a working-class professional who is caught up with work, or a regular person who does not want to visit the bank's branch to run a single errand. It also offers convenience. Elaborating on the convenience offered, digital banking lets a user carry out banking work around the clock, with 24*7 availability of access to banking functions. Thirdly, digital banking promises to boost the gross domestic product (GDP) of digitalized economies by providing convenient access to diverse range of financial products and services (and credit facilities) for individuals as well as small, medium and large businesses, which can boost aggregate expenditure thereby improving GDP levels (Ozili 2018). Digital banking can also lead to greater economic stability and increased financial intermediation, both for customers and for the economy where they and their families reside. Fourthly, digital banking innovation can have long run positive effects on banking operation and financial performance. Scott, Van Reenen, and Zachariadis (2017) in their study found the adoption of SWIFT (i) has large effects on profitability in the long-term; (ii) these profitability effects are greater for small banks than for large banks; and (iii) exhibits significant network effects on performance. Fifthly, banking has become paperless with the development of digital banking as a service. A user can log into their account at any point in time using their mobile phone, ipad or their computer to monitor records. This means that digital bank goes 100 percent paperless by leveraging on financial technology (Iwedi, Igbanibo, & Uzo-ahunanya, 2018). Finally, digital banking benefits the regulatory of the financial and monetary system because full-scale adoption of digital banking can significantly reduce the circulation of bad and fake currency; enabled fund transfers to reduce the risk of counterfeit currency and promoting a cashless society were digital banking restricts the circulation of black money as the Government can keep a track of fund movements. In the long run, digital banking is expected to lower the minting demands of a currency.

2.2 Theoretical Foundation

2.2.1 Financial Innovation Theory

Financial innovation refers to the process of creating new or modifying existing financial and investment services products, processes or services offerings. Li and Zeng (2010) believe financial innovations according to Silber (1983) are premised on the idea that benefit expansion of money related foundations as the key reason of financial inclusion. Indeed, due to the similarity of financial services offerings of financial and investment services firms, innovations that promote value-added brand becomes the basis of preference of one product or service over another. Sekhar (2013) sees financial innovation as a critical motivating force of the financial system which leads to better economic competence and enhanced economic advantages derived from the new and frequent changes. Financial innovations enhance financial markets liquidity; ensure the allocation of resources to insufficient areas as well as improving the accessibility to emerging prospects (Blach 2011). Basically, the theory envisages new and optimal ways of production, technological solutions and enhancing overall corporate bottom-line improvements. Financial Innovation often results in greater economic efficiency over time due to the tendency of improved knowledge of optimal utilisation of service channels and other financial management techniques. Thus, five key financial innovations practices stand out,

namely improved technology, risk management, risk transfers, credit and equity generation and overall innovations. Crowd funding, mobile banking application technology and fund remittance technology rank amongst the very common innovations in the financial services industry. Innovation can also be institutional, product or processes often resulting from increased volatility of interest rates, inflationary pressures, and vicissitudes in stock prices and the constant fluctuation of foreign exchange rates. In all of these, the end result is the improved efficiency of intermediation in the sector.

2.2.2 Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) is an information systems theory that models how users adapt and accept the use of a technology. The theory was originally put forward by Fred Davis (1986) as espousing the tendency to employ technological knowhow in providing financial services solutions. TAM according to Lim and Ting (2012) explains the perception towards new technology (which) has a direct relationship to its functionality as well as the simplicity of the system. The model deals with customers' values and perception of the new technology and not necessarily its real usage. Davis (1986) had premised his findings on three causative factors, namely the Perceived Ease of Use of the technology (PEOU), Perceived Usefulness (PU) and Perceived Attitude (PA) towards the use of the technology which ultimately affect their individual preferences. Sebastian (2011) is of the opinion that the technology acceptance theory is the most widely used theory in explaining the acceptance of any information technology by the users, electronic payment system inclusive. Holden and Kash (2010) in their work on the technological acceptance theory discovered that the adoption of technology such as electronic payment system is significantly influenced by the perceived usefulness of the technology.

2.2.3 Diffusion of Innovation Theory (DOI)

This theory was propounded by E.M Rogers (1962) and seeks to explain the how, why, and at what rate new ideas and technology spread. Thus, the DOI explains approach through which innovation can be passed via different ways over certain period among different users. Rogers (1995) identified 5 main grid that influence the acceptance and spread of new ideas to be the innovation itself, adopters, communication channels, time and a social system. Echchab & Hassanuddeen (2013) asserts that innovation is conveyed through various channels continually among individuals of the same social beliefs. The adopters identified above fall into five categories, namely innovators, early adopters, early majority, late majority and the laggards. The innovations also have four grids, incremental, laggards, disruptive, architectural and radicals.

2.3 Empirical Review

Research by Beuermann, McKelvey, and Vakis (2012) in rural Peru reveals that mobile phone coverage expansion has reduced extreme poverty, while increasing household consumption. Asongu (2015) reports a negative relationship between mobile penetration and income inequality in a sample of 52 African countries. In similar study by Asongu and Le Roux (2017) found that mobile, internet and broadband penetration have a positive impact on inclusive growth, as measured by the inequality-adjusted human development index. Gosavi (2018) in his study found that mobile money a byproduct of digital banking have a positive impact on SME financial inclusion, through its effects on increased access to bank credit. According to findings by Abor, Amidu, and Issahaku (2018), mobile ownership reduces the probability of a household falling into poverty in Ghana. Asongu and Odhiambo (2019) found a negative relationship between mobile, internet and broadband penetration and inequality in a panel of 48 African countries. Individual country studies provide further evidence of the positive development outcomes of information and communication technologies (ICTs).

Ananda, Devesh, & Al Lawati (2020) investigate the factors influencing the adoption of digital banking by retail banking customers. Using theoretical model to conceptualize the linkage among the factors impacting digital banking adoption, the study found that awareness, web features and perceived usefulness have significant positive influence on adoption of digital banking.

Fernandes, Borges & Caiado (2021) investigated the contribution of digital financial services to financial inclusion in Mozambique using the Autoregressive Distributed Lag (ARDL) model, for the period from January 2011 to September 2019. The study uses two models to analyze the contribution of digital financial services to financial inclusion measured by the number of bank accounts in Mozambique. The first model uses traditional digital means of payments as independent variables, such as the volume of financial transactions through automated teller machines (ATMs), point-of-sales (POSs), electronic transfers of inter and interbank funds, direct debit, and domestic and cross-border remittances. The second model considers innovative digital means of payments, such as internet banking, mobile banking and electronic money. We conclude that, excluding domestic remittances and direct debit, which present low levels of penetration in the country, and internet banking transactions, the remaining variables contribute to financial inclusion. The results confirm the crucial role that digital financial services play in financial inclusion, particularly in improving access to and the use of services by the under-served population.

3. METHODOLOGY

3.1 Research Design and Data

The study adopted the time series methodology because the study is a longitudinal research designs that deals with a single unit of research measured repeatedly at regular intervals over time. As a cause and effect study examining the relationship between digital banking channels and economic growth in Nigeria, a time series methodology allows us to analyze how digital banking channels influence economic growth in Nigeria over the period of the study. Data were sourced from the published Central Bank of Nigeria Statistical Bulletins for the period under review (2009 - 2020). The choice of 11 year period is as a result of unavailable prior year's data for digital banking channels. Data collected for this study where analyzed with the help of ordinary least square of regression technique, unit root test, Johanson co-integration test and granger causality test.

3.2 Model Specification

The relationship between digital banking channels and economic growth in Nigeria is modeled in a functional relationship as follow:

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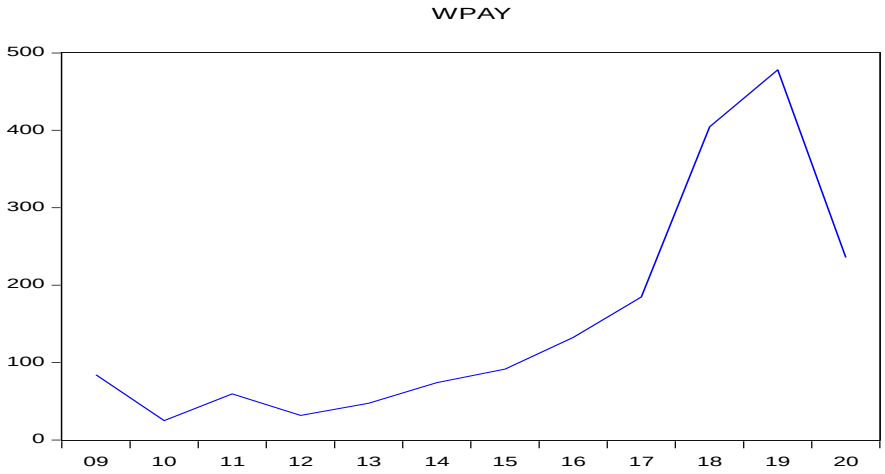
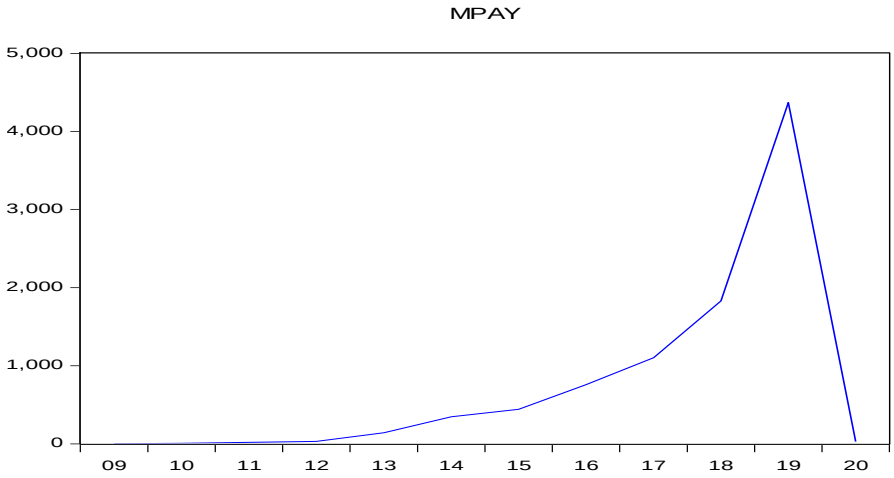
$$Real\ GDP = f\ (Webpay,\ Mobilepay) \qquad 1$$

The functional relationship above can be represented in OLS linear regression equation form as shown below:

$$RGDP = \beta_0 + \beta_1 Wpay + \beta_2 Mpay + U_{it} \qquad 2$$

4. RESULTS AND DISCUSSIONS





4.2 Descriptive Result

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Table 1 Relationship between digital banking channels and Real GDP

	RGDP	WPAY	MPAY
Mean	97765.63	154.0525	756.6650
Median	95177.74	87.86500	244.6350
Maximum	154252.3	478.1300	4371.550
Minimum	43461.46	25.05000	1.270000
Std. Dev.	36088.03	148.6311	1269.110
Skewness	0.101234	1.248846	2.144432
Kurtosis	1.933065	3.212407	6.643412
Jarque-Bera	0.540532	3.141791	15.83441
Probability	0.763176	0.207859	0.000364
Sum	1075422.	1848.630	9079.980
Sum Sq. Dev.	1.30E+10	243003.2	17717046
Observations	12	12	12

Source: E-view 9.0 Output

The average means of 97765.63% shows that Nigeria real gross domestic product witnessed the widest swing in the period under review. This is evidently confirmed by the standard deviation of 36088.03%. The value of a normal skewness is always zero (0) and the series for Real GDP (RGDP), web pay (WPAY) and mobile pay (MPAY) mirrors normal skewness which is mesokurtic and the kurtosis FOR Real GDP is playkurtic in nature which implies that the values of the series are less than 3 (1.88 for Real GDP) while webpay (Wpay) and Mobile pay (Mpay) are leptokurtic in nature, (3.21 for web pay), and 6.64 for mobile pay (Mpay). A look at the jarque-bera statistic which is a measure of the difference between the skewness and kurtosis of each of the variables with those from the normally distributed variables show a value of 0.540532 for Real GDP, 3.141791 for web pay and 15.83441 for mobile pay. Under the null hypothesis of a normal distribution, the reported probability indicates that we can accept the hypothesis of normal distribution in the case of real GDP (0.763176) and web pay (0.207859) because their probabilities are statistically not significant at 5% level of significance while for mobile pay (0.000364) will reject null hypothesis of a normal distribution because their probabilities level is lower than the significance level of 0.05, thus we can say that mobile pay are normally distributed curve, it has a normal distribution.

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4.3 Regression Analysis

Table 2 OLS Result for the relationship between digital banking channels and Real GDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	61239.58	11595.44	5.281351	0.0007
MPAY	11.30557	11.32831	0.997992	0.0475
WPAY	277.4177	98.52527	2.815701	0.0226
R-squared	0.678667	Mean dependent var		97765.63
Adjusted R-squared	0.598334	S.D. dependent var		36088.03
S.E. of regression	22871.55	Akaike info criterion		23.14018
Sum squared resid	4.18E+09	Schwarz criterion		23.24869
Log likelihood	-124.2710	Hannan-Quinn criter.		23.07177
F-statistic	98.48156	Durbin-Watson stat		1.961972
Prob(F-statistic)	0.000662			

Source: E-view 9.0 Output

From the result in table 2, the relative statistics show that of the two explanatory variables under investigation passed the test of hypothesis as they exhibit a significant p-value accordingly. From the result in table 2, mobile pay (MPAY) and web pay (WPAY) exhibit a significant p-value of 0.0475 and 0.0226 with corresponding coefficients of 11.30557 and 277.4177 respectively. This result suggest that one percent increase in the use of digital banking channels (mobile pay and web pay) by bank customers are capable of increasing real GDP to the tune of 11.30557 and 277.4177 respectively. By implication, digital channels are capable of stimulating the economy. From the global statistics the adjusted R^2 report an average coefficient of 0.6786 which implies that 68% of variation in the explained variable is captured by the explanatory variables. The F-statistics and corresponding p-value report the overall significances of the model. The overall goodness of fit is high with an F-statistics of 98.48156 and probability value of 0.000662.while the Durbin Watson statistics shows a coefficient of 1.96 which is within the acceptable range and thus implies the absence of serial correlation.

5. Conclusion and Recommendations

The study examined the relationship between digital banking channels and economic growth in proxy by real GDP. The result shows that WEB pay and Mobile Pay all exhibit a strong relationship with Nigeria economic growth. It therefore implies that digitalization of banking service channels are strongly and significantly associated with economic growth in Nigeria. This further reveals that customers in Nigeria are embracing digital methods of banking and therefore it is recommended that banks can still continue to increase awareness about the various digital platforms available to customers to explore. However, in modern digital global market and banking sector, it is recommended that banks should encourage the consumers' use of digital ways of banking including Remita, m-Cash, E-bills pay and NIBSS automated payment services.

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