Financial Inclusion and Economic Growth in Nigeria

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ABSTRACT

Financial development is not simply a result of economic growth; it is also the driver of economic growth. Financial inclusion (FI), a feature of financial development, is a process that marks improvement in quantity, quality, and efficiency of financial intermediary services. It generates local savings, which increase productive investments in local businesses. This paper investigated the impact of FI on economic growth in Nigeria. It aimed to highlight the determinants of FI and its impact on economic growth. Secondary data were sourced from world development indicators and ordinary least square regression model was used to analyze the data. The result shows that FI is a significant determinant of the total factor of production, as well as capital per worker, which invariably determines the final level of output in the economy. This study recommends that natural and economic resources should be adequately harnessed, as alternative means of revitalization and diversification of Nigeria's oil-dependent monocultural economy.

Keywords: Financial Inclusion, Economic Growth, Nigeria
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1. INTRODUCTION

Over the past decade, the Nigerian economy enjoyed steady growth and her gross domestic product (GDP) averaged a growth rate of 7%, for the past 5 years. Nigeria is the biggest economy in West Africa, contributing 41% to the sub-region's GDP and is regarded as Africa's third largest economy, after South Africa and Egypt, contributing 14% to the continent's GDP. Nigeria was ranked 31st in 2012 in terms of purchasing power parity and as the 8th largest producer of petroleum, with oil reserves estimated at about 36 billion barrels. Nigeria also has the 6th largest deposit of natural gas with reserves estimated at a minimum of 100 trillion cubic feet (Usman, 2010). About 34 solid minerals, including significant uranium deposits, have been discovered in Nigeria. Abundant arable land and over 44 exportable commodities are also available. Nigeria is ranked as the 7th richest country because of her oil revenue which accounts for 95% of foreign exchange earnings and about 80% of budgetary revenues. The population of the country was estimated at approximately 168 million in 2012 with a young population median age of 18.63 years and 53.83 million labour force (Usman, 2010; CIA World Fact Book, 2013).

Despite all the resources, she is challenged by a disproportionate distribution of income, which has widened the disparity between the rich and the poor. More than half the country's wealth is shared by only 10% of the population (Awe and Olawumi, 2012). In 2012, 67.1% of the Nigerian population was reported to be living below poverty level, despite continuous growth in GDP (NBS, 2012). Ironically, economic analysts have described the rise in GDP as "exclusive," since it has not translated into any real socio-economic gain in terms of employment opportunity, poverty reduction and improvement in the general living conditions of the citizenry. This uneven growth has resulted in the exclusion of 57% of the country's adult population (50.1 million people) from formal finance services. This was identified as a key cause of poverty, due to lack of access to productive assets, and inadequate healthcare (Khan, 2012). Nigeria's real growth can only be assured if steps are taken to ensure that her social and economic development is all inclusive. Sanusi (2010) opined that economic growth would be achieved at a faster rate, if all segments of the population have access to financial services.

The governments of Nigeria and other developing countries have made financial inclusion (FI) a priority. This is evidenced

by the evolving policy strategy on FI, coupled with regulatory reforms and new funding vehicles, as announced by the Federal Government in 2011. The Nigerian Government has set a target of reaching full inclusion by 2020. The FI strategy is considered relevant to achieving Central Bank of Nigeria's (CBN's) objective of maintaining external reserves, to safeguard the international value of the Naira. This objective among others is believed to be achievable, as FI brings about increased access to finance for micro small and medium scale enterprises, leading to greater productivity, increased non-oil export and subsequently stabilize demand for the Naira.

The term FI came into limelight in the early 2000s, emanating from a research finding that emphasized poverty as a direct consequence of financial exclusion. The drive for FI is aimed at ensuring that all adult members of the society have easy access to a broad range of financial products, designed according to their needs and provided at affordable costs. These products include payments, savings, credit, insurance and pensions. Nigeria presently operates a dual financial system, with the formal and informal financial sectors operating side by side but with little or no interaction. Money outside the banking sector was estimated at N12.67 trillion as at December 2011. Current statistic shows that in the year 2012, a total of 39.2 million adult Nigerians (46.3% of the adult population of 84.7 million) were financially excluded with no access to either formal or informal finances. Further analysis revealed that 54.4% of the excluded population were women, 73.8% were <45 years (productive age), 34.0% had no formal education, while 80.4% reside in rural areas. Nigeria has 28.6 million bank accounts with a population of over 168 million people, and 89.7 million adults (EFInA, 2012).

Financial system plays the important role of promoting economic growth and development through financial intermediation by channeling funds from the surplus unit to the deficit unit of the economy. Many studies have established that financial development tends to increase economic growth and reduce inequality and poverty (Ajakaiye, 2012). It is established in literature that a financial system with banks as its major component, provides linkages for the different sectors of the economy and encourages a high level of specialization, expertise, economies of scale and a conducive environment for the implementation of various government policies, such as non-inflationary growth, exchange rate stability, balance of payments equilibrium and full employment (Sanusi, 2011). This is only possible if the financial system is all inclusive. With a larger percentage outside the purview of government, financial systems cannot achieve the objective of economic growth. Thus, the monetary and price stability objective of the CBN will become elusive.

A well-functioning financial system drives economic growth, creates a platform for financial intermediation by providing savings, credit, payment, and risk management products to people with a wide range of needs. Financially inclusive systems allow an easy broad based access to financial services by making customized financial products available at an affordable price without stringent documentation, particularly to the poor or other disadvantaged groups within the economy. Without financially inclusive systems, the poor would rely on their limited savings for future investments and small enterprises would not be able to pursue promising growth opportunities because they would have to rely on their limited earnings, this is the reason for the persistent income inequality and drag in the economic growth of most developing countries.

Globally, savings mobilisation policies and programmes are regarded as a catalyst of FI. Unfortunately, the Nigerian Government does not have any policy in place for savings mobilization, most of her policies and intervention programmes are geared towards credit enhancement that are yet to produce the desired results (CBN-National FI Strategy [NFIS], 2012). The first step to a committed inclusion programme, as it relates to formal bank customer relationship, starts with the opening of a savings account. Increased savings can be engendered by including the poor and disadvantaged groups in the formal financial system. Given their large numbers, this small savings group represents a means of financial diversification which can enhance financial stability and economic growth of a country. However, when financial development is not entirely inclusive; especially when it tilts heavily towards the wealthy, it may dampen economic growth (Ajakaiye, 2012).

It is interesting to note that after the Maya Declaration of 2011 on FI for the unbanked, FI became a focus for policy makers and researchers alike because of its link to economic growth. Khan (2011) stated that empirical evidence indicates a distinct rise in income level of countries with a high number of commercial bank branches and higher number of bank branches (NBB) per 100,000 adults and more number of deposit accounts per 1000 adults was observed in high income countries, than countries in the low and middle income categories. At the micro level of the economy, increasing FI portends so many positive developments with respect to improving the growth rate of the economy (Mbutor and Uba, 2013). This further buttresses the conclusion of Ashraf et al. (2006) that people who are financially included tend to be more productive, by consuming and investing more. It is on this premise that this study set out to investigate the link between FI and economic growth in Nigeria.

FI is a new area of research particularly in Nigeria, this paper therefore attempts to fill the gap in literature by providing empirical evidence on the relationship between FI and economic growth in Nigeria; this is the overall objective of the study. The specific objectives are; (i) To determine the determinant of FI in Nigeria and, (ii) to examine the impact of FI on economic growth, using the Solow growth model. The rest of the paper is divided into four sections. Section II contains relevant theoretical and literature review while the methodology of the study is explained in Section III. The results and discussion are presented in Section IV while Section V contains the concluding remarks.

2. THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1. Finance-Growth Relationship: Theoretical Underpinning

Studies on financial development have identified four distinct areas as the driving force of economic growth. The main one

is the provision of a low cost reliable means of payment to all, particularly the low income group. The second is the role financial intermediation plays in increasing the volume of transaction and allocation of resources from the surplus unit to the deficit unit of the economy and in the process improve resource distribution (Odeniran and Udeaja, 2010). The third has to do with the risk management effect, that the financial system provides by curtailing liquidity risks, thereby enabling the financing of risky but more productive investments and innovations within the economy (Greenwood and Jovanovic, 1990; Bencivenga and Smith, 1991) and lastly, the financial sector provides information on possible investment and availability of capital within the system, thereby ameliorating the effects of asymmetric information (Ross, 2004).

From the perspective of aggregate production function, the financial effects enumerated above contribute significantly to changing savings and investment inputs into a larger output in the economy, through either a capital accumulation channel (Hicks, 1969) or a technological change channel (Schumpeter, 1912).

Taking the capital accumulation channel as an example, the familiar Solow growth model shows that an increase in the savings rate, δ, will increase the steady-state levels of capital (k) and per capita output (y). Such shift in δ, is as illustrated in Figure 1. The shift from $δ_1$ to $δ_2$ causes steady state k to rise from $k*1$ to $k*2$ and per capita output to rise from $y*1$ to $y*2$.

The analysis implies elimination of financial repression and a reduction in financial market failures which will improve the quality of investment because only projects with returns greater than the interest rate (IR) are/will be funded. Thus, the entire production function will shift upward, from f(k) to g(k). The increase in the economy's efficiency will further increase savings because $δ_2 g(k)>δ_2 f(k)$, as shown in Figure 2. It could be seen from Figure 2 that the new steady-state levels of per-worker capital stock and per-worker output, $k*3$ and $y*3$, exceed not just the original levels, $k*1$ and $y*1$ but also the higher levels caused by just the increase in savings and investment, $k*2$ and $y*2$.

Among other reasons, the financial sector plays a significant role in increasing production function through effective monitoring and management of investment projects. The Solow model captures only the short-run and medium-run effects of improvements in financial development. It does not explain technological progress or long-run economic growth. The limitation of the Solow growth model led to the Schumpeterian model of growth. Schumpeter posited that a well-developed financial sector is absolutely necessary, if entrepreneurs are to successfully engage in a process of ingenuity. New projects require financing because the upfront investment cannot always be covered by the entrepreneurs themselves. Without a financial sector to channel funds from, innovation would be nearly impossible and there would be little permanent economic growth. It is on this premise that FI becomes very necessary for economic growth, because it is provides innovative financial products to encourage low income earners to save more (Odeniran and Udeaja, 2010).

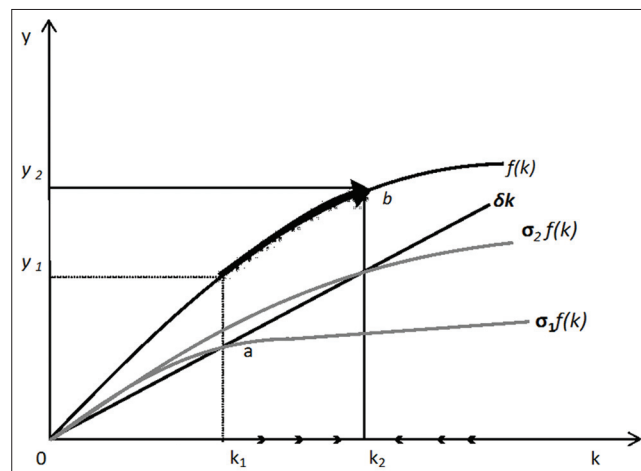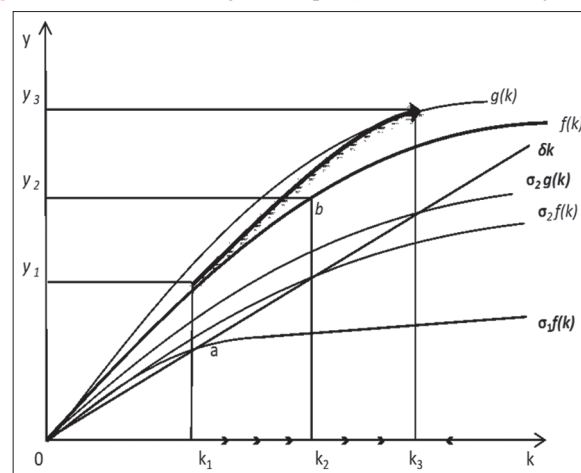**Figure 1:** Effects of savings on capital accumulation (Odeniran and Udeaja, 2010)

Figure 2: Effects of savings on output (Odeniran and Udeaja, 2010)

2.2. Review of Empirical Literature

FI is achieved when adults have easy access to a broad range of financial products designed according to their needs and provided at affordable costs. These products include payments, savings, credit, insurance and pensions. This definition is anchored on four thrusts. The first is ease of access to financial products and services which implies that financial products must be within easy reach for all groups of people and should avoid rigorous requirements, such as challenging Know-Your-Customer procedures. Secondly, a broad range of financial products and services should be made available to the unbanked too. FI implies access to a broad range of financial services such as payments, savings, credit, insurance and pension products. Thirdly, the products are expected to be designed according to the need of the unbanked, taking their income levels and access to distribution channels into consideration and lastly, it must be provided at an affordable cost. Formal financial services should be affordable even for low-income groups, particularly when compared to informal services, e.g. Esusu or moneylenders (CBN-NFIS, 2012).

FI is the process of ensuring access to appropriate financial products and services needed by all sections of the society, especially the vulnerable low income groups at an affordable cost

in a fair and transparent manner, by regulated mainstream financial institutions. Access in this sense implies absence of price or non-price barriers in the use of financial services (Chakrabarty and Rupayan, 2013; World Bank, 2012). The idea of FI is not just about access to financial services, it also entails timeliness. Rangarajan (2008) as cited by Lakshmi and Visalakshmi (2013), perceive FI as the process of ensuring access to timely and adequate financial services, particularly credit, when needed by vulnerable groups at an affordable cost. FI is both a crucial link and a substantial first step towards achieving inclusive growth and it should include access to financial products and services like bank accounts, check in account, immediate credit, savings products, remittances and payment services, insurance, healthcare, mortgage, financial advisory services and entrepreneurial credit.

Hariharan and Marktanner (2012) stated that lack of FI is a multifaceted socioeconomic phenomenon that results from various factors such as geography, culture, history, religion, socio-economic inequality, structure of the economy and economic policy. FI indicates that majority of the population have access to a portfolio of quality financial products and services which include loans, deposit services, insurance, pensions and payment systems, as well as financial education and consumer protection mechanisms. Greater FI can promote economic development through the establishment of mechanisms that allow more access to products and services of financial institutions.

FI is often interpreted in a relative term depending on the stage of financial development in each country. The degree of FI differs among countries. In the past, multilateral agencies promoted financial sector deepening, as a means to improve economic growth, reduce poverty, and promote social inclusion. According to Kingsley (2013), FI has continued to gain attention across the globe, the main reason for this is the promise which FI holds in addressing global poverty, income inequality, under development and welfare. It is believed that when everybody gain access to financial services, their joint contributions to the development process will create a faster and more quantitative impact.

Hariharan and Marktanner (2012) concluded that FI has the potential to enhance economic growth and development. They found a strong positive correlation between a country's FI and total factor productivity (TFP), implying that FI possesses the ability to create capital. The study concluded that FI has the potential to increase the financial sector savings portfolio, enhance efficiency of intermediation, and boost entrepreneurial activities which ultimately results in economic growth. Khan (2011), explained that access to basic financial services would lead to increased economic activities and employment opportunities for rural households, as more people get engaged in economic activities, the disposable income of the rural household would rise, leading to more savings and a robust deposit base for the bank, the multiplier effect will result in economic growth, this implies inclusive growth.

According to Subbarao (2009), very few economies transit from an agrarian system to a post-industrial modern society without a broad-based FI strategy. FI will make it possible for governments to make payments such as credit guarantee funds, subsidies and wages, directly to the bank accounts of beneficiaries through electronic transfer channels. This will minimize transaction costs, pilferages, leakages and subsequently eliminate corruption from the society. Sarma and Pais (2010) asserted that a financially inclusive system helps in reducing the prevalence of informal financial institutions that are in most cases exploitative, it encourages easy access to capital and usage of the formal financial system by all segments of the economy. FI enhances efficient allocation of productive resources and in the process reduces the cost of capital. They concluded that financially inclusive systems enhance efficiency and welfare by providing avenues for secure and safe financial practices. Mbutor and Uba (2013) presented a simple model showing the impact of FI on monetary policy in Nigeria between 1980 and 2012. The result from the study shows that growing FI improves the effectiveness of monetary policy.

From the forgoing arguments, it is obvious from available literature that all financially inclusive systems have the potential to enhance economic growth by expansion of formal financial services to all segments of the economy and reduce informal financial services, which will enhance resource allocation and economic growth in the country.

3. METHODOLOGY

3.1. Choice of Variables

Data description and source is presented in Table 1 below. The study employed yearly data on selected variables from 1981 to 2012. Certain variables from previous studies were modified and adapted for this study. The first step to bank customer relationship starts with the opening of savings accounts. Savings accounts are used to mobilize savings, which is the ultimate aim of (FI). For this study, we used the commercial bank deposit (CMBD). CMBD reported a number of deposit account holders in commercial banks and other resident banks functioning as commercial banks that are resident nonfinancial corporations (public and private) and households. The CMBD serves as proxy for account holders and this is use as our dependent variable. Hariharan and Marktanner (2012) argued that in addition to income levels, factors such as income inequality, natural resource rents, productive economic capacity, and democracy are important determinants of FI. Also, countries with higher per capita income support FI. For this study, we used GDP per worker, which is calculated as the ratio of GDP to total labour force. The argument is that people in high income countries save more, they are more financially literate, and can be offered more financial products; therefore, markets for banking services are less likely to fail.

Another variable used as a determinant of FI is income inequality often captured by the country gini coefficient. Ardic et al. (2011) cited in Hariharan and Marktanner (2012) asserted that income inequality is often the result of unequal economic opportunities and monopolized markets which often leads to the marginalization of the poor and FI would be low in countries with great income disparities. Savings interest rate was also used as independent variable in the model, the argument is that the interest rate offered to savers should encourage more people to save, thereby resulting in financial inclusion. Also, the number of commercial bank

Table 1: Data description and sources

Variable	Abbreviation	Description and sources	Apriori
Commercial bank deposit	CMBD	Depositors with commercial banks are the reported number of deposit account holders at commercial banks and other resident banks functioning as commercial banks that are resident non-financial corporations (public and private) and households. For many countries data cover the total number of deposit accounts due to lack of information on account holders. The major types of deposits are checking accounts, savings accounts, and time deposits (2012 WDI). Any bank customer relationship starts with opening an account and mobilizing deposit	Dependent
Number of bank branches	NBB	Number of commercial bank branches per 1000 km² is used as FI access indicator. It is also calculated as Number of commercial bank branches per 100, 000 adults, this indicates how accessible the banks are to the bank user (CBN statistical bulletin online, 2012)	+
Income inequality	Gini	Gini index measures the extent to which the distribution of income or consumption expenditure among individuals or households within an economy deviates from a perfectly equal distribution. A Lorenz curve plots the cumulative percentages of total income received against the cumulative number of recipients, starting with the poorest individual or household. The Gini index measures the area between the Lorenz curve and a hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line. Thus, a Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality. UNUWIDER, World Income Inequality Database V2.0c May 2008. Awe and Olawumi (2012)	_
Polity 2	Pol	Polity 2 score (measures democratic practice on a scale from−10 to +10 with higher values indicating greater institutionalization of democratic procedures). Marshall, M., Jaggers, K., Gurr, T. (online), Polity IV Project, Political Regime Characteristics and Transitions, 1800-2012	+
Interest rate	IR	Interest paid by banks on savings and deposit (CBN statistical bulletin online, 2012)	_
Wholesale and retail services as a percentage of GDP	WSR	Lots of SME activities take place at this level, more Nigerians are believed to be self-employed (CBN Statistical Bulletin, 2012 online)	+
Total natural resources rent	TNNR	TNRRs (% GDP), sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents (2012 WDI)	_
GDP per worker	GPW	Calculated as the ratio of GDP (constant 2000 US$), Y, and total labor force, L, available at 2011 World Bank Development Indicator Database (2011 WDI)	+

Source: (Authors compilation, 2014), CBN: Central Bank of Nigeria, CMBD: Commercial bank deposit, UNUWIDER: United Nations University World Institute for Development Economics Research, GDP: Gross domestic product

branches per 1000 km2 was used as FI access indicator. It can also be calculated as the number of commercial bank branches per 100, 000 adults, this indicates how accessible the banks are to the bank user. As democracy is a vehicle to drive policy and correct many determinants of FI through income re-distribution, we used polity 2. Polity 2 score measures democratic practice on a scale from -10 to +10 with higher values indicating greater institutionalization of democratic procedures (Marshall et al., 2011). The study hypothesized that democracies favor FI through established institutions (Claessens and Perotti, 2007; Deininger and Squire, 1998). Total natural resource rent was also used as a determinant of FI in this study. The argument is that economies that rely heavily on the extraction of natural resources that are based on authoritarian bargains, this make a case for unequal economic development and monopolized markets. Hence, it projects a negative effect on FI.

Likewise, countries whose GDP consists of high wholesale and retail activities, experience a high rate of self - employed activities and provided more decentralized economic opportunities particularly with large, small and medium entrepreneurs which the financial service industries can take advantage of, to pool small savings. This will provide a cheaper and stable pool of deposits which will ensure greater resilience of banks with respect to financial shocks and also reduce the cost of loanable funds available in banks and other financial establishments. All the variables and the aprori expectation is presented in Table 1.

To explain how FI affects economic growth, we used a typical production function in which output depends on capital and TFP. There is good reason to assume that an increase of FI could affect both capital accumulation and TFP. As FI increases the liquidity of the economy and reduces borrowing costs, and capital formation increases (Claessens and Perotti, 2007). In addition, building a banking service infrastructure requires capital. Moreover, the expansion of FI is likely to facilitate the matching process between savers and investors, which increases TFP (Claessens, 2006). We therefore hypothesized that

Output=F (total factor productivity (FI), capital (FI)) (1)

First, we established the determinant of FI in an economy based on the literature above and then related the effect on output (TFP and capital formation) using the Solow growth equation.

3.2. Method of Analysis

3.2.1. Unit root test

The augmented Dickey Fuller (ADF) and the Phillips-Perron (PP) tests are used to test for unit roots in the following equation:

$$\Delta y_t = C_1 + \omega y_{t-1} + C_2 t + \Sigma_{t=1} d_i \Delta y_{t-1} + \mu_t \tag{2}$$

y_t = relevant time series
Δ = an operator for first difference
t = a linear trend
μ_t = error term

The null hypothesis of the existence of a unit root is $H_0: \alpha = 0$. Failure to reject the null hypothesis leads to conducting the test on further differences of the series. Further differencing is conducted until stationarity is reached and the null hypothesis is rejected. We use the Akaike information criteria to determine the lag length.

3.2.2. Model specification

The three models specified to capture the three tables could be expressed in its explicit equation form as;

Determinants of FI (Table 2)

$$LCMBD = \alpha_0 + \alpha_1 LCPW_t + \alpha_2 LNBB_t + \alpha_3 LIR_t + \alpha_4 LWSR_t + \alpha_5 POL_t + \alpha_6 LGINI_t + \alpha_7 LTNRR_t + \alpha_8 LCMBD_{t-1} + \mu_t \tag{2}$$

TFP (Table 3)

$$LTFP = \beta_0 + \beta_1 LCMBD_{t-1} + \beta_2 POL_t + \beta_3 LGINI_t + \beta_4 LIR_t + \beta_5 LWSR_t + \beta_6 LTNRR_t + \beta_7 LNBB_t + \mu_t \tag{3}$$

Capital accumulation (Table 4)

$$CPW = \pi_0 + \pi_1 LCMBD_t + \pi_2 LNBB_t + \pi_3 LGINI_t + \pi_4 POL_t + \pi_5 LIR_t + \pi_6 LIR_{t-1} + \pi_7 WSR_t + \pi_8 TNRR_t + \pi_9 TNRR_{t-1} + \mu_t \tag{4}$$

Where;

LCMBD=Commercial bank deposit
LCPW=Capita per worker
LTFP=Total factor productivity
LIR=Interest rate
LWSR=Whole sale sell and retail contribution to GDP
POL=Polity 2
LGINI=Gini coefficient
LTNRR=Total natural resource rent
LNBB=Number of bank branches
μ_t=Disturbance term

4. PRESENTATION OF RESULTS AND DISCUSSION

4.1. Data Time Series Characteristics

The test of multicollinearity as shown in Table 5 among the variables was conducted to examine how interrelated the variables are among themselves, especially within the independent variables.

Table 2: Result of determinants of FI

Variable	Coefficient	Standard error	*P*-value
LCPW	0.105408	0.055256	0.0685
LNBB	1.736709	0.212886	0.0000
LIR	−0.671666	0.323452	0.0487
LWSR	−0.165491	0.055318	0.0063
POL	0.097737	0.021510	0.0001
LGINI	3.032777	0.585178	0.0000
LTNRR	0.866792	0.486930	0.0877
C	0.362733	2.705657	0.8945

R^2: 0.973332, DW statistics: 1.722014, Adjusted R^2: 0.965554, *F*-statistic: 125.1364, Probability (*F*-statistic): 0.000000

Source: (Author's computation, 2014), FI: Financial inclusion, DW: Durbin-Watson, LCPW: Capita per worker, LNBB: Number of bank branches, LTNRR: Total natural resource rent, LR: Interest rate, LCMBD: Commercial bank deposit

Table 3: Result of TFP estimation

Variable	Coefficient	Standard error	*P*-value
CMBD (−1)	0.080307	0.034609	0.0305
POL	0.000205	0.001179	0.8635
GINI	0.010158	0.033711	0.7661
IR	0.033453	0.013803	0.0245
WSR	−0.002689	0.002589	0.3107
TNRR (−1)	−0.043350	0.019000	0.0331
NBB	0.017874	0.015786	0.2703
C	3.739015	0.115158	0.0000

R^2: 0.555779, DW statistics: 2.323337, Adjusted R^2: 0.365398, *F*-statistic: 2.919303, Probability (*F*-statistic): 0.020669

Source: (Author's computation, 2014), DW: Durbin-Watson, NBB: Number of bank branches, CMBD: Commercial bank deposit, TFP: Total factor productivity, CPW: Capita per worker, IR: Interest rate, TNRR: Total natural resource rent

Table 4: Result of capital accumulation estimation

Variable	Coefficient	Standard error	*P*-value
CMBD	1.334049	0.666442	0.0584
NBB	−1.740844	1.430094	0.2370
GINI	0.058458	3.042245	0.9849
POL	−0.012815	0.106258	0.9052
IR	−0.598662	1.317922	0.6543
IR (−1)	−1.357259	1.151526	0.2517
WSR	0.177799	0.228647	0.4455
TNRR	−1.322907	1.826948	0.4770
TNRR (−1)	0.577974	1.702614	0.7376
C	4.666009	10.45140	0.6598

R^2: 0.751081, DW statistics: 2.100478, Adjusted R^2: 0.644401, *F*-statistic: 7.040516, Probability (*F*-statistic): 0.000117

Source: (Author's computation, 2014), DW: Durbin-Watson, NBB: Number of bank branches, CMBD: Commercial bank deposit, TFP: Total factor productivity, CPW: Capita per worker, IR: Interest rate, TNRR: Total natural resource rent

The result indicates a strong positive relationship between NBB and CMBD (r=0.95), GINI and CMBD (r=0.71), LCPW and LCMBD (r=0.828), LCPW and LNBB (r=0.743), LCPW and GGINI (r=0.572), GINI and NBB (r=0.645), IR and GINI (0.53) and SWR and GINI (r=0.70) which need to be taken into cognizance in consideration of the study.

4.2. Unit Root Test

To determine the stationarity of the series we first conduct a unit root test. The absence of a unit root is premised on the assumption that the series exhibit the same order of integration, mechanism for adjustment to equilibrium due to external shock effect, zero mean and constant variance. In general terms, if the series needs to be

Table 5: Result of multicollinearity test

Variable	LTFP	LCPW	LCMBD	LNBB	LGINI	POL	LIR	LWSR	LTNRR
LTFP	1	−0.31415	−0.18955	−0.13068	−0.1367	−0.0714	0.234245	−0.31843	−0.23275
LCPW	−0.31415	1	0.82866	0.74301	0.572141	0.469821	−0.11757	0.378549	−0.23791
LCMBD	−0.18955	0.82866	1	0.950506	0.711361	0.466656	0.008621	0.392749	−0.17882
LNBB	−0.13068	0.74301	0.950506	1	0.645718	0.393775	0.012658	0.329373	−0.17395
LGINI	−0.1367	0.572141	0.711361	0.645718	1	−0.04448	0.530439	0.701387	0.074363
Pol	−0.0714	0.469821	0.466656	0.393775	−0.04448	1	−0.36989	0.133772	−0.40348
LIR	0.234245	−0.11757	0.008621	0.012658	0.530439	−0.36989	1	0.399219	0.282399
LWSR	−0.31843	0.378549	0.392749	0.329373	0.701387	0.133772	0.399219	1	0.235786
LTNRR	−0.23275	−0.23791	−0.17882	−0.17395	0.074363	−0.40348	0.282399	0.235786	1

Source: (Author's computation, 2014), LCPW: Capita per worker, LNBB: Number of bank branches, LTNRR: Total natural resource rent, LR: Interest rate, LCMBD: Commercial bank deposit

differenced "n" times in order to achieve I(0), i.e. to be integrated to order zero, then the series is said to be integrated of order "n" and can be expressed as X_{t-} I(n), Awe and Olawumi (2012). In this study the PP test was employed rather than ADF test. Awe and Olawumi (2012) stated that the PP test is an improvement of the ADF test which does not take into account the less restrictive nature of the error process. Nyong (2003), cited in Awe and Olawunmi (2012), stated that the use of PP replaces the use of lags in the ADF unit root test.

The result of Table 6 shows that all the series were non-stationary at their levels. The PP test also indicates that only LGINI and LNTRR were stationary at their levels while the rest remain non-stationary. Hence, all the series were differenced at first differencing to attain a trend stationary level. The above result, therefore suggests that the series were integrated to order 1, represented as I(1). The implication of the presence of a unit root is the probability of having a series that could be persistently influenced by external shocks and disturbances on the variables which could also result to a spurious result if unchecked.

4.3. Determinant of FI

The determinants of FI proxy, CMBDs, have been analyzed in Table 2. Having satisfied the basic statistical criteria, the study proceeded with the model result, as it was free of estimation error and spurious results. The observations revealed a significant relationship and relevance with formal account deposits of commercial banks in Nigeria. It was found from the FI model that capital per worker plays a significant role in the determination of bank deposits within the banking system. An increase in access to capital through higher capital accumulation by labor significantly increased FI by 10.54%, via formal account deposits with commercial banks, after controlling for other variables. The estimated coefficient for the NBB shows that by expanding, banks could attract customers far from the main branch, who ordinarily would not have been able to open a formal account with such banks. Likewise, the political terrain and level of income among different categories of workers could be a basic determinant factor in assessing the rate at which the public allow their financial transactions to go through the formal account process with commercial banks. In the same vein, a percent rise in TNRR significantly increased bank deposits by 86.67%. Conversely, the low savings rates of the banking sector have discouraged most people from embarking on formal account openings and deposits, as evidenced from the estimated parameter for deposit mobilization rate. The estimated coefficient of wholesale and retail

Table 6: Result of unit root test with PP

Series	PP statistics		Critical value		Order of integration
	Level	First difference	1%	%	
LTFP	−6.040	−12.8024	−3.6701	−2.9639	I (1)
CPW	−2.3352	−12.6006	−3.6701	−2.9639	I (1)
CMBD	−0.3704	−4.4366	−3.6701	−2.9639	I (1)
NBB	−0.3951	−5.6239	−3.6701	−2.9639	I (1)
GINI	−4.1147	−3.7537	−3.6701	−2.9639	I (1)
OL	−1.8320	−4.8009	−3.6701	−2.9639	I (1)
IR	−2.7984	−6.1678	−3.6701	−2.9639	I (1)
WSR	−1.5308	−5.2351	−3.6701	−2.9639	I (1)
TNRR	−3.8560	−9.9314	−3.6701	−2.9639	I (1)

Source: (Author's computation, 2014), NBB: Number of bank branches, PP: Philip-Peron, CPW: Capita per worker, CMBD: Commercial bank deposit, IR: Interest rate, TNRR: Total natural resource rent

services indicates a negative elasticity of 16.5% for deposits with commercial banks, suggesting a retarded contribution though significant at 10%.

4.4. Estimation of Solow Growth Equation

The estimated elasticity of capital per worker indicates a positive production coefficient of 4.59% with coefficient of determination of 0.702, explaining about 70.2% variation in income per capital, arising from changes in capital per labor. The presence of auto-correlation was checked using auto-regressive process of order 1 and validated with the Durbin–Watson statistic result (DW) of 2.1 as shown in Table 7.

4.5. FI, TFP and Capital Accumulation

From the estimated factor productivity model, estimated R^2 result (0.55) and F-statistic of 2.9 (significant=0.020), it can be seen that the model goodness of fit is satisfied. Conversely, the DWs statistic validates the absence of correlational problems, often identified with the time series analysis of similar study. Thus, results from the model are free from bias and could be useful for policy recommendations. CMBDs proxy for FI, bank deposit rate and TNRR revealed the most significant relations with respect to TFP. Analysis of the result in Table 3 shows that previous year's deposit accounts of bank customers have significant impact on the current year's total factor of productivity. A percentage increase in CMBD increases output by 8% in the current year provided other socio economic cum political factors are kept constant. Although there is a direct relationship between income inequality, political stability and output, it is not significant enough. It further stresses the need for the strengthening of political institutions and the nation's democracy, amidst growing inequality and social classifications in the country.

Table 7: Result of estimation of the Solow growth equation

DV=lny	Constant	Lnk	N	R²	F-statistic
Coefficient	−36.979***	4.591***	2	0.702	17.697
	(21.324)	(2.558)			(significant=0.0001)

Standard errors in parenthesis. ***Significance at 10% and DW=2.18. Source: (Author's computation, 2014), DW: Durbin Watson

This stylizes pertinent policy issues requiring a proactive measure for effective implementation in order to realize the full potentials of growth dividend, accruing from FI. Increasing bank savings rate will help to attract more depositors and facilitate availability of investment credits required in expanding total productivity within the economy. As evidenced from this result, the over 3% increase recorded in output, was accounted for by a percentage rise in the deposit rate of commercial banks, provided all things are equal. Total natural resource and rents of previous year, wholesale and retail for the current period indicated retarded contribution for the growth of output with only total natural resources and rent significant. The total natural resources and rents revealed a decrease of over 4% in its contribution for output growth, owing to a shortfall from the previous year's receipt. Also, the NBB seemed to support output and productivity but not significant.

4.6. Capital Accumulation

Given the result of Table 4, only CMBD, proxy for FI significantly increased capital per worker. A percent rise in FI therefore accounts for a more than proportionate positive elasticity of 8 and 133% for the total factor of productivity and capital per worker, respectively. Other variables indicated longer significant levels that can be attributed to multicollinearity challenges associated with exogenous variables as shown in Table 5. However, this does not connote loss of economic relevance. It is therefore empirically determined that FI is a significant determinant of total factor of production as well as capital per worker, which invariably determines the final level of output in the economy. Thus, the Solow growth model postulates that output is a function of total productivity and capital per labor has been empirically determined in this study. Its empirical result confirms the assertion that FI has a significant impact in determining the output growth of any economy.

5. CONCLUDING REMARKS

The economic implication of the findings from this study assumes a complete transition of up to 100% financial inclusiveness; suggesting that a growth potential of 374% could be achieved within the economy while keeping political and socioeconomic factors constant. Therefore, there is need for adequate financial and political security measures to be put in place. This will ensure a financially and politically secure system of governance that would heighten public confidence in formal account creation and increase savings deposit mobilization within the financial system. More importantly, it will act as a catalyst in assisting the monetary authorities (CBN) realize the goal of repositioning the country's economy to compete globally in the ongoing economic policies for FI. Finally, the natural and economic resources should be adequately harnessed as alternative means of revitalization and diversification of the mono-cultural nature of her oil dependent economy.

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