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FINANCIAL INCLUSION, PERSONAL INCOME AND OUTPUT GROWTH IN NIGERIA

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ABSTRACT

This study investigates the nexus between financial inclusion, personal income and output growth in Nigeria covering the periods of 1981 to 2019. It adopts the unit root test, cointegration test and error correction model (ECM), using annual series data sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin and World Bank World Development Indicator (WDI). The study proxy financial inclusion using ratio of credit to the private sector to gross domestic product, and economic growth using real gross domestic product. The Johansen result indicates long run relationship between real gross domestic product, ratio of credit to the private sector to GDP, personal income and money supply. The study found financial inclusion have a positive and significant effect on real gross domestic product. Personal income and money supply both stimulate economic growth significantly. The study recommends Nigerian banks to develop financial products to reach the financially excluded regions of the country and government should strengthen the regulatory framework so as to ensure effective and efficient credit delivery to the private sector.

Introduction

Financial inclusion has a great role to play in the growth of a nation. When there is financial inclusion, funds will be well channeled that will bring about growth of a nation. On the other hand, personal income has a great role to play, when the

personal income of an individual is high, savings will increase correspondingly with consumption. The saved funds will be channeled from the surplus economic unit to the deficit economic unit. One of the key factors affecting the growth of Nigeria is poor access to funds by those who want to involve in various production activities (Ajakaiye, 2013).

Ajakaiye (2013) further noted that some of the factors that have contributed to this lack of access include: inadequate access points, high cost of financial services, low financial literacy, onerous requirements and lack of income. Addressing these pressing constraints will pave way to a first step towards achieving inclusive finance, particularly among the poor and low income segments of the population.

Although economic activities may vary from one country to another, efforts are being made by policy makers and nonprofit organization to create awareness on financial inclusion issue (EFINA, 2013). The central aim is to encourage the propagation of effective and efficient strategies from one country to another ensuring that the whole world benefits in the process.

In Nigeria, efforts are being made by stakeholders such as the CBN, Financial institutions, World Bank, National Poverty Eradication Program (NAPEP), Enhancing Financial Innovation and Access (EFINA), micro finance banks, among others to increase the level of financial inclusion (CBN, 2012).

The Central Bank of Nigeria (CBN) has been in the forefront of the push for financial inclusion in Nigeria. The aim is to empower millions of the unbanked Nigerians into the financial system to become viable in the economic growth process (Sanusi, 2013). Sanusi (2013) further stressed that, the role of economic development measures is being adopted to forge financial inclusion by selected countries and the attempts being made by Nigeria also follows suit. The Nigeria national financial inclusion strategy defines financial inclusion as a state where adult Nigerians have easy access to a broad range of financial services that meets their needs at affordable costs.

Financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit and insurance delivered in a responsible and sustainable way.Being able to have access to a transaction account is a first step toward broader financial inclusion since a transaction account allows people to store money, and send and receive payments. A transaction account serves as a gateway to other financial services, which is why ensuring that people worldwide can have access to a transaction account is the focus of the World Bank Group's Universal Financial Access 2020 initiative.

In simplest terms, economic growth refers to an increase in aggregate production in an economy. Often, but not necessarily, aggregate gains in production correlate with increased average marginal productivity. That leads to an increase in incomes, inspiring consumers to open up their wallets and buy more, which means a higher material quality of life or standard of living.

In economics, growth is commonly modeled as a function of physical capital, human capital, labor force, and technology. Simply put, increasing the quantity or quality of the

working age population, the tools that they have to work with, and the recipes that they have available to combine labor, capital, and raw materials, will lead to increased economic output. . However, balance of evidence seems to favor a positive relationship between private sector credit and economic growth.

Several studies examined the effect of financial inclusion on economic growth in Nigeria but to the best of my knowledge, no study has examine the effect of financial inclusion, personal income on economic growth in Nigeria. Therefore, this study is aimed at examining the effect of financial inclusion, personal income on economic growth in Nigeria from the period under study.

Literature Review

Theoretical Review

Neoclassical Growth Theory

The Robert Solow (1956) neoclassical growth theory stressed the importance of savings and capital formation for economic development. The Neoclassical Growth Theory established that savings and capital formation toward productivity on real sectors in an economy serve as measures for economic growth and development. In his theory, Robert Solow noted a steady state growth path is reached when output, capital and labor are all growing at the same rate, so output per worker and capital per worker are constant.

Robert Solow believe that to raise an economy's long-term trend rate of growth, there must be an increase in the finance of productive and real sectors, labor supply, and an improvement in the productivity of labor and capital. Neoclassical economists believe that growth cannot be stable, that a sustained increase in capital investment and financing towards productive real sectors in an economy increases the growth rate and sustainability of the growth in order to achieve economic development.

The Finance Growth Theory

The finance-led growth was originated by Bagehot (1873). Theories on the finance growth nexus maintain that financial intermediaries create a productive environment for growth and economic sustainability through supply - leading or demand – following effect. The demand-following effect based on the argument that the financial system does not stimulate economic growth rather the financial systems simply react and affect development in the real sectors while the supply leading effect contrasts the demand following argument that financial system in an economy does not determine economic growth.

Empirical Review

Harley, Adegoke and Adegbola (2017), carried out an empirical study on the role of financial inclusion in economic growth and poverty reduction in a developing economy using panel data analysis ranges from 2006 to 2015within a log linear model specification framework. The methodology they applied to the study was extracted from the literatures they came across. From their regression result, the records of active ATM, bank branches and government expenditures selected from three Africa countries were the most robust predictors for financial inclusion on poverty reduction in a developing economy.

According to them, one percent increase on ratio of active ATM will leads to

about 0.0082 percent increase in the gross domestic product and a reduction of poverty in developing economy. According to them an indicator shows that most of the ATM in developing economy are outdated and thus required a technological upgrade to have a significant impact in rural areas.

Their coefficient of determination was very high as it showed that about 92 percent of the total variations in real growth rate of gross domestic product are explained by all the independent variables in the model. Consequently, the researchers recommended that Government should focus on poverty reduction through focus on infrastructural development that will enhance banking services.

Gretta (2017), in his work on Financial Inclusion and Growth studied the impact of financial inclusion on the growth of the economies in developing countries such as the Middle East and North Africa (MENA) and the BRICS region and tried to identify the various channels of transmission between financial literacy, financial intermediaries and growth. The study applied a VAR regression in order to quantify the relationship between financial inclusion in terms of financial activities, financial literacy and growth and to study its impact on the economic growth in the MENA region. His findings showed the importance of financial inclusion in the MENA and BRICS region.

Nwafor and Yomi (2018) focused on the nexus between financial inclusion and economic growth in Nigeria. They formulated two hypotheses using the data from 2001-2016 and tested using Two staged least square regression method. The result revealed that financial inclusion has statistically significant impact on economic growth in Nigeria and the finding further shows that financial intermediation have not influenced financial inclusion within the period under review.

Sethy (2017) researched on the developing financial inclusion index and inclusive growth of India used the data of both demand and the supply side from 1987-2012 to measure the level of financial inclusion of India. He adopted the financial inclusion index. The study found out that India is categorized under the high financial inclusion in case of demand side but low financial inclusion in case of supply side dimension.

Nkwe (2018) looked insight Nigeria to study the significant of financial inclusion on the growth of Africa. The researcher used extrapolates time series financial inclusion data from Nigeria covering the period of 1981-2013 and adopted multiple regression models anchored on ordinary least square technique. The results reveal that financial inclusion has significant negative impact on the growth of Nigerian economy over the years due to high level of financial exclusion of un-bankable adults in Nigeria.

Omojolaibi (2017) studied financial inclusion, governance and economic growth of Nigeria to understand what happen to the welfare of the poor. The author used the data span for the period 1980 – 2014, the study leans on the generalized method of moment (GMM) estimation techniques for the analysis. The result revealed that there is statistical relevance in determining infrastructural investment in Nigeria; Governance indices and commercial bank deposits significantly increase per capita

GDP and financial inclusion has the tendency to bridge the gap between the rich and the poor and reduce the prevalence of poverty in the economy.

Neaime and Gaysset (2018) explored the effect of financial inclusion on inequality and poverty in eight MENA countries between 2002 and 2015. Using the Generalised Method of Moments (GMM) and Generalized Least Squares (GLS) econometric techniques, the outcomes reveal that financial inclusion decreases wage inequality, and has little impact on poverty levels. In contrast, higher population rates, high inflation, and trade transparency have substantially increased poverty levels in the MENA area.

Okoye, Adetiloye, Erim and Modebe (2017), in their study; financial inclusion as a strategy for enhanced economic growth and development investigated the outcome of financial inclusion on economic growth and development in Nigeria over the period 1986 to 2015 using the Ordinary Least Squares technique. They measured financial inclusion in the study using loan to deposit ratio, financial deepening indicators, loan to rural areas, and branch network. Measures of financial deepening adopted in the study are ratios of private sector credit to GDP and broad money supply to GDP. Economic growth was proxied by the researchers as growth in GDP over successive periods while per capita income was adopted as a measure of poverty, hence an index of development. The study showed that credit delivery to the private sector has not significantly supported economic growth in Nigeria and that financial inclusion has promoted poverty alleviation in Nigeria through rural credit delivery. The study recommended that the monetary authorities should deepen financial inclusion efforts through enhanced credit delivery to the private sector as well as strengthen the regulatory framework in order to ensure efficient and effective resource allocation and utilization.

Babajide, Adegboye and Omankhanlem (2018), investigated the impact of Financial Inclusion on economic growth in Nigeria. Their study aimed at highlighting the determinants of Financial Inclusion and its impact on economic growth. Their study made use of secondary data sourced from world development indicators and ordinary least square regression model was employed in analyzing the data. Their result shows that financial inclusion 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. The study recommended that natural and economic resources should be adequately harnessed, as alternative means of revitalization and diversification of Nigeria's oil-dependent monocultural economy.

Otiwu, et al., (2018) while investigating the influence of financial inclusion on growth in Nigeria, using the Ordinary Least Square (OLS) techniques found that the growth and development of Nigeria is significantly dependent on financial inclusion, claiming that the financially excluded citizens possess untapped and unexplored valuable potentials that will contribute immensely to national prosperity. Similarly, Odeleye and Olusoji (2018) empirically examined financial inclusion and inclusive growth in Nigeria, using the ordinary least squares method, and their study validate the finance led hypothesis and establish a case that financial inclusion is germane for

inclusive growth in the country. Cabeza-Garcia, et al., (2019) examined female financial inclusion and its impact on inclusive economic development, using instrumental variable analysis for 91 countries and found evidence attesting to the fact that greater financial inclusion for woman has a positive economic impact on inclusive growth.

Cihak, Mare, and Melecky (2016) document that a considerably higher growth rate is experienced in sectors which tend to rely on external finance in countries having greater financial depth. In this sense, financial development positively affects economic growth by reducing firms' financial constraints. With an access to proper financial services, the poor or disadvantaged have equal opportunities for an investment in their education and physical assets, thus resulting in a reduction of income inequality and a boost of economic development.

Kim, Yu, and Hassan (2018) find the positive influence of financial inclusion on economic development in the Organization of Islamic Cooperation (OIC) countries by applying the dynamic panel analysis. Also, the impulse response functions derived from the panel vector autoregression confirm the positive relationship and the mutual causalities between the financial inclusions and economic growth is documented based on the panel Granger causality tests.

Kim (2016) finds a positive impact of financial inclusion on economic growth in OECD countries via an indirect channel of income inequality. The positive impact is much stronger in the low-income and high-fragility country. The classification into the low- and high-income (fragility) is based on the level of income (the share of non-performing loans over total bank loans) in a year that is lower or higher its median value.

Table 2.1: Summary of Empirical Literature

Authors	Method	Scope	Findings
Gretta (2017)	VAR	MENA and BRICS	Financial inclusion promotes growth.
Nwafor and Yomi (2018)	2SLS	2001 – 2016, Nigeria	Financial inclusion significantly affect economic growth.
Sethy (2017)	OLS	1987 – 2012, India	Financial inclusion promotes growth.
Nkwe (2018)	OLS	1981 – 2013, Nigeria	Financial inclusion has negative and significant impact on economic growth.
Omojolaibi (2017)	GMM	1980 – 2014, Nigeria	Financial inclusion reduces income inequality and poverty.
Neaime and Gaysset (2018)	GMM, GLS	2002 – 2015, MENA countries	Financial inclusion decreases wage inequality.
Okoye, Adetiloye, Erim and Modebe	OLS	1986 – 2015, Nigeria	Financial inclusion has no significant impact on economic growth.

(2017)			
Babajide, Adegboye and Omankhanlem (2018)	OLS	1986 – 2016, Nigeria.	Financial inclusion is a determinant of economic growth.
Otiwu, et al., (2018)	OLS	Nigeria	Economic growth is dependent on financial inclusion.
Odeleye and Olusoji (2018)	OLS	Nigeria.	Finance-led hypothesis holds.
Cabeza-Garcia, et al., (2019)	GMM	19 countries.	Financial inclusion promotes economic growth.
Cihak, Mare, and Melecky (2016)	GMM	Turkey	Financial inclusion positively affects economic growth.
Kim, Yu, and Hassan (2018)	Panel VAR, Panel Granger causality test	Organization of Islamic Cooperation (OIC) Countries.	Positive relationship between financial inclusion and economic growth.
Kim (2016)	GMM	OECD Countries	Positive impact of financial inclusion on economic growth.

Materials and Method

The researchers employed ex post-facto research design and secondary data was used which aimed at determining the relationship between financial inclusion and economic growth in Nigeria. Data for this study are secondary data and covered the period of 1981 to 2019. The secondary data were sourced from Central Bank of Nigeria (CBN) statistical bulletin and World Bank World Development Indicator (WDI).

The study adopted the model of Okoye, Adetiloye, Erim and Modebe (2017) and Nwafor and Yomi (2018) which showed a nexus between financial inclusion, personal income and economic growths. The model for this work is given as:

$$RGDP = f(CPSG, PI, MS) \ (1)$$

Where:

$RGDP = Real\ Gross\ Domestic\ Product$;

$CPSG = Ratio\ of\ Credit\ to\ the\ private\ sector\ to\ GDP$;

$PI = Personal\ Income$;

$MS = Broad\ Money\ Supply$.

The econometric form of equation 1 is given as;

$$lnRGDP_t = \alpha_0 + \alpha_1 lnCPSG_t + \alpha_2 lnPI_t + \alpha_3 lnMS_t + \mu_t \ (2)$$

The a priori expectation is that: $\alpha_1 - \alpha_3 > 0$.

Estimation Techniques

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 differenced n times in order to achieve I(0), that is to be integrated to order zero, then the series is said to be integrated of order n (Awe and Olawumi, 2012).

In this study the Phillip-Perron (PP) unit root test was employed rather than the augmented Dickey-Fuller (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.

Counteraction

This is used to determine the number of cointegrating vectors using Johansen's methodology with two different test statistics namely the Trace Test Statistic and the Maximum Eigen-value Test Statistic. The former tests the null hypothesis in which the number of different co- integrating associations is less than or equal to 'r' in contradiction to the alternative hypothesis of more than 'r' co-integrating associations. The maximum Eigen-value statistic is used to test the null hypothesis of at most 'r' co-integrating vectors alongside the alternative hypothesis of 'r+l' co-integrating vectors.

Error Correction Model (ECM)

This study applies ECM in order to assess the short run properties of the model. This arises when cointegration has been identified between series and we conclude that there occurs a long-term equilibrium association; hence we use ECM (in case of single equation) and Vector Error Correction Model (in case of system of equation). In the case where there is no cointegration, VAR is used.

Results and Discussion

Unit Root Test

Table 1: Phillip-Perron Unit Root Test Result

Variables	PP		Decision
	Level	1^{st}_diff.	I(d)
$InRGDP_t$	-0.6225	-4.5821**	I(1)
$lnCPSG_t$	-2.0171	-5.1549***	I(1)
$lnPI_t$	-2.5252	-6.7140***	I(1)
$lnMS_t$	-0.7558	-3.6628***	I(1)

Source: Author's Computation (2021)

The result of Table 1 shows that all the series were non-stationary at their levels. 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.

Cointegration Test

Table 2: Johansen Cointegration Test Result

Date: 13/07/21 Time: 14:38
Sample (adjusted): 1983 2019
Included observations: 36 after adjustments

Trend assumption: Linear deterministic trend
Series: INRGDP INCPSG INPI INMS
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.623630	74.15198	47.85613	0.0000
At most 1 *	0.455787	38.97340	29.79707	0.0033
At most 2 *	0.256930	17.07046	15.49471	0.0287
At most 3 *	0.162400	6.379731	3.841466	0.0115

Trace test indicates 4 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.623630	35.17858	27.58434	0.0044
At most 1 *	0.455787	21.90293	21.13162	0.0389
At most 2	0.256930	10.69073	14.26460	0.1704
At most 3 *	0.162400	6.379731	3.841466	0.0115

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Source: EViews 10 Output

From table 2, the cointegration test result reveals that long run relationship exists among all the variables examined. Specifically, there exists long run relationship among financial inclusion variable (ratio of private sector credit to GDP), personal income, broad money, and real gross domestic product with trace statistic reporting four cointegrating equations and max-Eigen statistic reporting two cointegrating equations. Hence, with the above results and for the fact that the study looks at single or direct relationship between the dependents and explanatory variables from the mode, we proceed by estimating the model using Error Correction Model (ECM).

Error Correction Model (ECM)

Table 3: Parsimonious ECM Result

Dependent Variable: D(INRGDP)
Method: Least Squares

Date: 13/07/21 Time: 14:18
Sample (adjusted): 1985 2019
Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.027110	0.011539	2.349355	0.0304
D(INCPSG(-1))	0.358303	0.139983	2.559616	0.0197
D(INPI(-1))	0.065840	0.019359	3.401043	0.0032
D(INMS(-1))	0.058835	0.017081	3.444531	0.0029
ECM(-1)	-0.236622	0.040062	-5.906468	0.0000

R-squared	0.821767	Mean dependent var	0.047812
Adjusted R-squared	0.702946	S.D. dependent var	0.036258
S.E. of regression	0.019762	Akaike info criterion	-4.715057
Sum squared resid	0.007029	Schwarz criterion	-4.113707
Log likelihood	86.08338	Hannan-Quinn criter.	-4.519032
F-statistic	6.915969	Durbin-Watson stat	2.260765
Prob(F-statistic)	0.000152		

Source: EViews 10 Output

The output of the equilibrium correction model (ECM) estimated and reported in table 3 above revealed that the explanatory power as 0.82. This means that, 82 percent variation in the dependent variable RGDP is accounted for by the independent variables (CPSG, PI, MS), with the residual of 18 percent by variables not included in the model, but captured by the error term. From the result of the table, ratio of credit to private sector to GDP lagged 1 year has a significant and positive impact on current level of real gross domestic product as real GDP increases by 0.358 percent with one percent increase in credit to private sector. Personal income lagged one year affects current real GDP positively and it is significant at one percent level.

The result shows that money supply lagged one year has a positive and significant impact on current real GDP as real GDP increases by 0.0588 percent with an increase in money supply by one percent. The coefficient of the lagged error correction term (ECT) of -0.23 means that the model corrects short run disequilibrium at the speed of 23 percent annually. This gives the speed of adjustment of the model to be 23 percent.

Discussion of Findings

This study empirically investigated the effect of financial inclusion, personal income and economic growth in Nigeria. From the result of the study, it was discovered that a positive and significant relationship exist between CPSG and Gross Domestic Product in Nigeria, it could be as a result that, when credits are given to the private sector, production increases which affects Gross Domestic Product positively.

While a positive and significant relationship also exist between PI and Gross Domestic Product in Nigeria, the positive influence could be caused by the fact that when personal income increases savings increases correspondingly which affects the economy positively via intermediation role. However, a positive and significant

relationship also exist between MS and Gross Domestic Product in Nigeria. The results of this study are in line with the work of Adegoke and Adegbola (2017), Gretta (2017), Nkwe (2018), Neaime and Gaysset (2018).

Conclusion and Recommendations

The importance of financial inclusion and personal income is globally acknowledged due to its strategic role of bringing integrity and stability into financial systems as well as its role in achieving economic growth. It is more germane in the case of Nigeria as a developing economy to use financial inclusion as a dais solely not for growing the financial sector but more as an engine for driving the domestic economy.

This study examined the impact of financial inclusion and personal income in Nigeria and found that both financial inclusion and personal income affect real gross domestic product positively. The study concludes that financial inclusion and personal income are key drivers of the Nigerian economy.

Based on the results of this study, the following recommendations were made.

1. Nigerian banks should develop financial products to reach the financially excluded regions of the country as this will increase GDP per capital of Nigeria and consequently economic growth.
2. The CBN should help increase the money supply to enhance economic growth by growing the money supply at a moderate inflation rate.
3. The financial institutions (banks and non-bank) should extend deposit money bank branches and financial services to rural areas and also introduce mobile banking in the rural areas; as these will increase the level of financial inclusion in the rural areas and their participation in economic activities.
4. Government should strengthen the regulatory framework that will ensure effective and efficient credit delivery to the private sector.

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