

**Oil Revenue, Government Expenditure and Economic Growth in Nigeria: 1980-2016**

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**Abstract**

*This paper analyses the link between oil revenue, government expenditure, and economic growth in Nigeria over the period from 1980 to 2016 empirically leaning on the model employed by Al-Qudair (2005). The study utilizes time series secondary data using econometric techniques which included cointegration, Vector Error Correction Model (VECM), and Granger causality to determine the direction of causality and the magnitude of impacts of the variables. The stationarity of the variables was tested by conducting the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests. The results, as presented in Table 4.1 showed strong evidence(s) that all the variables were integrated of order one, that is, I(1). Findings from the analysis revealed that oil revenue Granger caused both of total government spending and growth, while there was no-causality between government spending and growth in the country. We therefore recommended that government should increase spending on capital projects as well as intensify efforts at increasing output in the oil sub-sector in order to boost economic growth in Nigeria.*

**Keywords:** Co-integration, Economic Growth, Oil Revenue, Public Expenditure

**JEL** **Codes**: 011, 013, 047.

**1. Introduction**

In Nigeria, the impact of oil revenue on government expenditure and economic growth should be significant, given its huge contributions to government spending and the impact on economic growth (Olaniyi, 2001). In addition, oil revenue has been the engine of growth in the economy since 1970. The oil boom in the 70s influenced significantly the fortune of the Nigerian economy, through the massive earnings in foreign exchange from oil (Wafure, 2001). Nigeria responded to the first oil windfall by increasing its expenditure more than revenues, and when the oil market weakened in the early 1980s, export earnings fell. With the general world-wide economic recession and the consequent drop in crude oil prices, the level of external reserves has grossly inadequate in terms of meeting the demands of the economy (Adam, 2001).

However, the problem of effective and efficient utilization of revenue from oil production may retard the realization of economic progress. Before oil exploration began in Nigeria in 1908 by a German company, Nigeria’s agricultural and mineral resources provided food, raw materials and export commodities. These important sectors generated income, government revenue and foreign exchange used in the provision of infrastructure for national development, social services which enhanced the quality of life (Olaniyi, 2001). From the early 1970s till date, revenue from oil has continued to dominate every segment of life in Nigeria. Not only has oil provided over 95% of the foreign exchange and contribute over 85% of government revenue, it has also influenced politics, education, industry, agriculture, culture and arts, even religion.

Again, the volatility of international crude oil price either upward or downward has implications for the aggregate revenue profile of Nigeria, as well as its public expenditure and economic growth. A reduction in the international per barrel price of crude oil would spell a continuous fall in the aggregate revenue profile while a rise would increase the revenue aggregate. Again, the Dutch disease is staring Nigeria in the face as history has proven that a country’s natural oil reserve level could deplete to zero. Many studies on Nigeria’s economic growth have been devoted to the link between economic growth and government spending (Essien, 1997; Aregbeyen, 2006; Babatunde, 2007; Ighodaro & Oriakhi, 2010; Oyinlola & Akinnibosun, 2013). The discourse from these studies is that either government expenditure impacted on growth or both variables Granger-caused one another.

It has been observed that many of the oil resource-rich developing countries have achieved little more than transient resource booms. Their economies expand rapidly when their resources are reaping windfalls or when there are resources to be exploited; but they contract after the windfall or when the resources are exploited (Adam, 2001). It argued that progress made by the country particularly in the area of infrastructural development is attributed to the ostentation of the oil boom (Olaniyi, 2001). Oil revenues have been, and continue to be, economically important in Nigeria, but their effective and efficient use on economic growth may not be realized.

What are the implications of oil revenue for government spending and economic growth? We asked this question because oil revenue is an important revenue source that can be used to finance economic growth and development.The purpose of this paper is to examine the impact of oil revenue on government expenditure and economic growth in Nigeria. The paper is divided into six sections. After this introduction, section 2 is literature review and theoretical framework. Section 3 contains methodology and model specification and section 4 is results and discussion. Section 5 is the conclusion and section 6 draws the recommendations.

**2. Literature Review and Theoretical Framework**

Observing that crude oil has been a major source of revenue, energy and foreign exchange for the Nigerian economy, Odularu (2008) analyzed the relationship between the crude oil sector and the Nigerian economic performance. Finding revealed that crude oil consumption and export have contributed to the improvement of the Nigerian economy. Thus, the study concluded that government should implement policies that would encourage active private sector participation in the crude oil sector in the country.

Adedokun (2012) examined the effect of oil export revenue on economic growth in Nigeria between the period of 1975 and 2009. Empirical analysis from the study suggested that oil export revenue had a positively significant effect on growth both in the short-term and long-term in the country. The study further revealed that the primary determinant of foreign exchange earnings in Nigeria was changes in the world crude oil prices.

Akinlo (2012) assessed the importance of oil in the development of the Nigerian economy over the period 1960 to 2009. Empirical evidence showed that oil could cause other non-oil sectors to grow. However, oil had adverse effect on the manufacturing sector. Findings revealed bidirectional causality between oil and manufacturing, oil and building and construction, manufacturing and building, and construction, manufacturing and trade and services, and agriculture and building and construction. It also confirmed unidirectional causality from manufacturing to agriculture, and trade and services to oil. However, the paper found no causality between agriculture and oil, likewise between trade and services and building and construction. In conclusion, the study recommended appropriate regulatory and pricing reforms in the oil sector in order to integrate it into the economy, and as well reverse the negative impact of oil on the manufacturing sub sector in Nigeria.

Oladipo and Fabayo (2012) investigated global recession and the oil sector, based on its effects on economic growth in Nigeria. Analysis from the study revealed a negatively significant relationship between GDP and oil produced (domestic consumption and export) in the country. The result also showed the existence of a decline in the oil sector due to global recession. The study, therefore, recommended deregulation of the oil sector for efficient performance, and more rigorous policies that will reduce global effects on the sector as it contributes the largest percentage of income to the Nigerian economy.

In Iran, Farzanegan (2011) analyzed the dynamic effects of oil shocks on different categories of the Iranian government expenditures from 1959 to 2007. The main results showed that Iran's military and security expenditures significantly responded to a shock in oil revenues (or oil prices), while social spending components did not show significant reactions to such shocks.

Kablan, Loening and Tanaka (2014) examined whether Chad was affected by Dutch disease by first analyzing if Chad’s economy presented some features that supported the existence of the natural resource curse, such as volatility in government resources, poor institutions, recurrent tensions, and mismanagement of oil resources. The results suggested that changes in domestic output and prices were determined by aggregate demand and supply shocks. However, findings showed that oil production and high international prices negatively affected agricultural output by small proportion. While associating the findings with structural underemployment and the inefficient use of existing production factor, the study concluded that increased public expenditures in tradable sectors present the opportunity to make oil revenues an engine of national development.

Cheng and Lai (1997) examined the causality between government expenditure and economic growth along with money supply in a trivariate framework over the period 1954 to 1994 in South Korea. In consistence with some of the previous studies that detected a feedback between GDP and expenditure, the study found bidirectional causality between government expenditures and economic growth in the country. Result of the study also suggested that money supply affected economic growth in South Korea.

Fölster and Henrekson (2001) examined the growth effects of government expenditure and taxation in a sample of rich countries over the period between 1970 and 1995. The general finding of the study was that the more econometric problems that were addressed, the more robust the relationship between government size and economic growth appeared. Gong and Zou (2002) set up a theoretical model linking the growth rate of the economy to the growth rate and volatility of different government expenditures. On the theoretical front, the study found that, depending on the inter-temporal elasticity in consumption, volatility in government spending can positively or negatively be associated with economic growth. Empirically, however, the study revealed a no-relationship between growth in capital expenditure and output growth, whereas growth in current expenditure seemed to drive output growth. Al-Bataineh (2012) investigated the impact of government expenditures on economic growth in Jordan during the period 1990 to 2010. Results from the study suggested that government expenditure at the aggregate level had positive impact on the growth of GDP in compatibility with the Keynesians theory. Also, the result showed that payment had no influence on GDP growth.

Contributing to the empirical literature on the debate about the validity of the Wagner’s hypothesis, Salih (2012) tested the hypothesis in the context of Sudan for the period 1970-2010. The results clearly supported the Wagner hypothesis as the growth of per capita real GDP had unidirectional relationship with the share of government spending to GDP. Thus, the study concluded that the Keynesian theory which states that an increase in government spending result in increases in GDP was not supported by the data from Sudan.

Alshahrani and Alsadiq (2014) empirically examined the effects of different types of government expenditures on economic growth in Saudi Arabia over the period from 1969 to 2010. Findings from the study indicated that while private domestic and public investments, as well as health care expenditure, stimulated growth in the long-run, openness to trade and spending in the housing sector could also boost short-run production.

Meanwhile, studies that had in different periods examined the nexus between governments spending and economic growth in Nigeria are vast in the empirical literature. For example, Oyinlola (1993) reported a positive impact of defense expenditure on economic growth. Also, Ogiogio (1995) revealed a long-term relationship between government expenditure and economic growth and also discovered that recurrent expenditure exerted more influence, than capital expenditure, on growth.

Furthermore, Fajingbesi and Odusola (1999) observed that real government capital expenditure had a significant positive effect on real output and that real government recurrent expenditure influenced growth only mildly in the country.

However, Akpan (2005) concluded that there was no significant relation between most components of government expenditure and economic growth in Nigeria. While employing a model that specified the effect of government consumption, investment spending, and private investment on real gross domestic product, Maku (2009) investigated the link between government spending and economic growth in Nigeria. The study found that private and public investments had insignificant effect on economic growth during the review period.

Ighodaro and Oriakhi (2010) found that increase in total government expenditure as well as specific expenditure on general administration and social services propelled economic growth. Adeniyi and Bashir (2011) found that government spending on agriculture, education, defense and internal security services as well as structural adjustment program was significant factor that influenced economic growth in the country.

Usman *et al* (2011) investigated the effect of federal government expenditure on economic growth in Nigeria. Results of the study showed that in the short run public spending had no impact on growth, but in the long run, a relationship was established between the two variables.

Oyinlola and Akinnibosun (2013) examined the relationship between public expenditure and economic growth in Nigeria during the period 1970-2009. After confirming the Wagner’s law, the result of the study further showed that economic growth and development were the main objectives of government expenditure, especially investment in infrastructure andhuman resources all of which fall under social and community services.

Essentially, Nurudeen and Usman (2010) showed that total capital expenditure, total recurrent expenditure, and government expenditure on education had negative effect on economic growth. Government expenditure on transport and communication, and health, however, had positive impact on economic growth.

In corroboration, Adewara and Oloni (2012) explored the relationship between the composition of public expenditure and economic growth in Nigeria between 1960 and 2008. The study found that expenditure on education failed to enhance economic growth while expenditure on health and agriculture contributed positively to growth.

Also, in a related study, Kolawole, Omobitan and Yaqub (2015) found a significant positive association between government expenditure on health and per capita growth in Nigeria, as against significant negative impact of government expenditure on education on per capita GDPover the period between 1980 and 2012 in the country.

Hamdi and Sbia (2013) empirically examined the dynamic relationships among oil revenues, government spending and economic growth in the Kingdom of Bahrain over the period from 1960 to 2010. The study investigated whether the huge government spending enhanced the pace of economic growth or not. Overall results suggested that oil revenues remained the principal source for growth, and the main channel which financed government spending.

It is imperative and noteworthy to examine whether oil revenue impact positively or not on economic growth and government expenditure. Using the Dutch disease theory which states that, the discovery of a natural resource (primary) has negative consequences which results from any large increase in foreign currency, including foreign direct investment, foreign aid or a substantial increase in natural resource prices.

The impediments of oil revenue to economic growth and development of oil-dependent states at the neglect of other sectors is what is cumulatively called Dutch Disease in the literature of development economics (Otawa, 2001). The enormous influx of cash resulting from oil tends to foster, overzealous and imprudent expenditure. High oil revenue raises exchange rates, promotes adverse balance of payment as the cost of imports rises. In fact, it kills incentive to risk investment in non-oil sectors, the competiveness of all non-oil sectors such as agriculture and manufacturing industries would be crowded out. If the employment of both labour and other resources has been exchanged for unemployment as the government and private expenditure multipliers have been exported abroad. Together, these forces constitute what Michael (2001) calls the rentier effect, oil states being rentier states.

**3. Methodology**

We use annual data on government oil revenue, public expenditure and real GDP from Nigeria for the period 1980-2016, sourced from the World Development Indicators of the World Bank (WDI, 2016), and employs Vector Error Correction Mechanism (VECM) since the examination considered both the short- and long-run impacts. Also, all the data series are transformed in natural logarithms so that their first differences approach the growth rates. From an economic point of view, this transformation also allows us to interpret coefficient estimates in terms of elasticity. Once the order of integration of each variable is determined and variables are found to be I(1), the concept of cointegration pioneered by Engle and Granger (1987) is used to examine the existence of cointegrating relationship among the variables. The concept of cointegration is intuitively appealing because it is supported by the notion of long-run equilibrium in economic theory. There exist several methods for testing for cointegration between two or more variables. In this study we conduct the Johansen cointegration test.

*The Model*

It is generally thought that revenue from crude oil has immediate impact on public expenditure as well as economic growth through the latter channel because production and sale of crude oil is on a monthly basis. The link between oil revenue, public expenditure and economic growth in Nigeria follows the conjecture of the model similar to that of Al-Qudair (2005) in the modified expressions in (1) and (2) below as follows.

Where, t signifies time, and are coefficients, and are the respective error terms. Others are as earlier defined above. The a priori expectation is that a positive relationship would be established between growth and each of oil revenue and government spending.

**4. Results and Discussion**

*Stationarity and Cointegration Result*

We subjected the variables in the model to a stationarity test as part of the necessary diagnostic check and to ensure that our model is specified correctly.As a first step, the stationarity of the variables was tested by conducting the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests. The results, as presented in Table 4.1 showed strong evidence(s) that all the variables were integrated of order one, that is, I(1). The next step was to test for the presence of long-run relation among the variables, that is, cointegrating relationships. Table 4.2 and Table 4.3 shows the results of the cointegration tests which suggested three, and at least one cointegration equation at the 5 percent level of significance.

Table: 4.1 Augmented Dickey-Fuller and Phillips-Perron Unit Root Test

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Stage | Critical Value | 1% | 5% | 10% |
| *LnGdp* | 1st Difference | -5.964880 | -2.664853 | -1.955681 | -1.608793 |
| *LnOrev* | 1st Difference | -9.356430 | -3.724070 | -2.986225 | -2.632604 |
| *LnGsp* | 1st Difference | -8.113853 | -2.647120 | -1.952910 | -1.610011 |

Table: 4.2 Result of the Johansen Cointegration Rank Test (Trace)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Hyp. No. | Eigenvalue | Trace Stat | 5% C.V | Prob. |
| r = 0 | 0.500719 | 44.15919 | 29.79707 | 0.0006 |
| r ≤ 1 | 0.367707 | 22.62704 | 15.49471 | 0.0036 |
| r ≤ 2 | 0.237766 | 8.416555 | 3.841466 | 0.0037 |

*Source: Authors ‘computation from Eviews version 8.1*

Table: 4 3. Result of the Johansen Cointegration Rank Test (Maximum Eigenvalue)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Hyp. No. | Eigenvalue | Max-Eigen Stat | 5% C.V | Prob. |
| r = 0 | 0.500719 | 21.53215 | 21.13162 | 0.0439 |
| r ≤ 1 | 0.367707 | 14.21048 | 14.26460 | 0.0510 |
| r ≤ 2 | 0.237766 | 8.416555 | 3.841466 | 0.0037 |

*Source: Authors’ computation from Eviews version 8.1*

*Granger Causality and ECM Results*

As presented in Table 4.4, the causality relationship between growth and government was bidirectional as both variables Granger caused each other. Oil revenue, however, had a unidirectional relationship with each of growth and government spending. Specifically, the results revealed that oil revenue Granger caused growth at 5 per cent level of significance as against Granger causing government spending at 1 per cent level of significance. Since Granger test is sensitive to the number of lags of the explanatory variables included in the causality equations, the Information Criterion (AIC) (Akaike, 1969), amongst others, was used to choose the optimal lags as presented in Table 4.5.

Table: 4.4 Pairwise Granger Causality Test Result

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Null Hypothesis | Obs | F-statistic | Probability | Decision |
| Orev does not Granger cause Gdp | 36 | 5.30894 | 0.0117 | Reject |
| Gdp does not Granger cause Orev | 36 | 0.57336 | 0.5706 | Accept |
| Gsp does not Granger cause Gdp | 36 | 1.01595 | 0.3760 | Accept |
| Gdp does not Granger cause Gexp | 36 | 0.37681 | 0.6897 | Accept |
| Gsp does not Granger cause Orev | 36 | 0.89043 | 0.4226 | Accept |
| Orev does not Granger cause Gexp | 36 | 6.85288 | 0.0041 | Reject |

*Source: Authors’ computation from Eviews version 8.1*

Table: 4.5 Lag Length Selection Criteria

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Endogenous variables: LNOREV LNGSP | | | | | | |
| Lag | LogL | LR | FPE | AIC | SC | HQ |
| 0 | -1021.66 | NA | 1.70E+15 | 74.34657 | 71.34657 | 71.13608\* |
| 1 | -1080.15 | 62.65413\* | 1.21e+15\* | 73.79976 | 72.67045 | 71.32632 |
| 2 | -1053.77 | 29.90087 | 3.41E+25 | 74.34989\* | 78.08366\* | 72.20246 |

*Source: Authors’ computation from Eviews version 8.1*

The estimated coefficient of the error correction term, ECT(-1) which is also the speed of adjustment to equilibrium, was negative and statistically significant as required by the granger representation theorem. This, as shown in Table 4.5, implied the validity of the long run relationship between each pair of the variables. The speed of adjustment to equilibrium required 83 per cent within a year when the variables drifted away from their equilibrium values. Thus, it provided enough evidence that GDP and Gexp; Gdp and Orev; as well as Orev and Gexp were cointegrated over the period considered. In addition, the ECM result revealed that oil revenue and government spending drove economic growth positively at 5 per cent and 10 per cent level of significance, respectively. This implied that a hundred percentage point increase in oil revenue, as well as in government spending caused a rise in growth of about 38 per cent and 3 per cent, respectively.

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Table: 4.6 Error correction model (ECM)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | Coefficient | Std. Error | t. Statistic | Prob. |
| D(LNORV) | 0.38669 | 0.089668 | 2.08676 | 0.0231 |
| D(LNTXP) | 0.03215 | 0.072754 | 1.95755 | 0.0779 |
| ECT(-1) | -0.83224 | 0.192676 | -3.37518 | 0.0036 |
| Adj. R2: 0.501142 | DW: 1.773328 |  | | |

*Source: Authors’ computation from Eviews version 8.1*

**5. Conclusion**

This study has examined the relationships among oil revenue, government spending, and economic growth in Nigeria. Specifically, it investigated if oil revenue impacted on government spending, as well as on economic growth in the country over the period 1980 to 2016. Econometric techniques which included VECM, cointegration and Granger causality were employed to determine the direction of causality and the magnitude of impacts. Findings from the analysis revealed that oil revenue granger caused total government spending, while there was no causality between government spending and growth. Also, it was revealed that oil revenue granger caused as well as impacted positively on economic growth. It was therefore concluded that oil revenue has been a very important variable that propelled government spending and economic growth in Nigeria.

**6. Recommendations**

The foregoing findings bear some implications for policy formulation. Firstly, given no-causality between government spending and growth, even though a mild impact of the former on the latter was reported, the government needs to re-examine the shares of both capital and recurrent expenditure in total government spending. Over the years, the percentage of recurrent expenditure has over-blotted to the extent that more than 70 per cent of the country’s budget was allocated to this item at the expense of capital spending. A situation of such can only bring about a mild nominal non-inclusive growth which has been the experience over the years.

Therefore, government should boost spending on capital or developmental projects. By doing this, jobs would be created, the economy would grow and poverty would decline. Secondly, because government spending and economic growth were granger caused and largely influenced by revenue from oil, it follows therefore that government should intensify efforts at increasing output in the oil sub-sector. In doing so, revenue would improve and more funds would be available for spending, and growth. It must; however be burn in mind that while trying to boost production of oil, government must not over-concentrate on the oil sub-sector by shifting interest from the non-oil sector in the country.

This is important because of the fact that experience has shown that natural oil reserve level could deplete to zero. A situation of zero oil reserve implies a zero production as well as zero revenue from oil. Therefore, assuming Nigeria finds itself in this condition, what then happens to government spending, employment, poverty, and growth? The bestway out of this imminent threat is that as efforts at boosting oil production and revenue are being intensified, the government should also devote significant resources to developing the non-oil sector. Substantial resources should be made available to the agriculture sector where cash crops produce like rubber, cocoa, palm oil and kernel, ground nut, cola nuts, and so forth could be largely produced for export, and local consumption.

Again, the manufacturing sub-sector should be provided with resources like electricity, road infrastructure, long- and medium-term credit facilities, and enabling business environment in order to boost production for export, and possibly help in the manufacture of some goods that are presently imported. If the government does this it would broaden the revenue base, and assist in stabilizing the economy in the period when revenue from oil drops as a result of resource depletion or decline in the international price of oil as currently being experienced.

**References**

Adam. A. J. (2001). Simulation analysis of the effect of Debts on the Nigerian Economy using Macro-econometric Model. Journal of Economics and Allied Fields, 1(2), 26-65.

Adedokun, A. J. (2012). Oil Export and Economic Growth: Descriptive Analysis and Empirical Evidence from Nigeria. *Pakistan Journal of Social Sciences, 9*(1), 46-58. Adeniyi, O. M., & Bashir, A. O. (2011).Sectoral Analysis of the Impact of Public Investment on Economic Growth in Nigeria (1970-2008). *European Journal of Social Sciences, 20*(2), 259.

Adewara, S. O., & Oloni, E. F. (2012).Composition of Public Expenditure and Economic Growth in Nigeria.*Journal of Emerging Trends in Economic Management Science, 3*(4), 403-407.

Akaike, H. (1969). Fitting Autoregressive Models for Prediction.*Annals of the Institute of Statistical Mathematics, 21*, 243-247.

Akinlo, A. E. (2012). How Important is Oil in Nigeria’s Economic Growth? *Journal of Sustainable Development, 5*, 165-179.

Akpan, N. I. (2005). Government Expenditure and Economic Growth in Nigeria: A disaggregated Approach. *CBN Economic and Financial Review, 43*(1), 51-69.

Al-Bataineh, I. M. (2012). The Impact of Government Expenditures on Economic Growth in Jordan.*Interdisciplinary Journal of Contemporary Research in Business, 4*(6), 1320-1338.

Al-Qudair, K. H. A. (2005). The Relationship between Government Expenditure and Revenues in the Kingdom of Saudi Arabia: Testing for Cointegration and Causality. *JKAU: Economics and Administration, 19*(1), 31-43.

Al-shahrani, S., & Al-sadiq, A. (2014). Economic Growth and Government Spending in Saudi Arabia: An Empirical Investigation. *IMF Working Paper* WP/14/3.

Aregbeyen, O. (2006). Cointegration, Causality and Wagner’s law: A Test for Nigeria. *CBN Economic and Financial Review, 44*(2), 1-7.

Babatunde, M. A. (2007). A Bound Testing Analysis of Wagner’s law in Nigeria: 1970-2006. *Applied Economics*, 1-8.

Cheng, B. S., & Lai, T. W. (1997). Government Expenditures and Economic Growth in South Korea: A VAR Approach. *Journal of Economic Development, 22*(1), 11-24.

Essien, E. A. (1997). Public Sector Growth: An Econometric Test of Wagner’s Law. *Central Bank of Nigeria.Economic and Financial Review, 35*, 3.

Fajingbesi, A. A., & Odusola, A. F. (1999).Public Expenditure and Growth. A Paper presented at a *Training Programme on Fiscal Policy Planning Management in Nigeria*, Organized by NCEMA, Ibadan, Oyo State. pp. 137-179.

Farzanegan, M. R. (2011). Oil Revenue Shocks and Government Spending Behaviour in Iran. *Energy Economics, 33*(6), 1055-1069.

Fölster, S., & Henrekson, M. (2001).Growth Effects of Government Expenditure and Taxation in Rich Countries.*European Economic Review, 45*(8).

Gong, L. T., & Zou, H. F. (2002). Effects of Growth and Volatility in Public Expenditures on Economic Growth: Theory and Evidence. *Annals of Economics and Finance, 3*, 379-406.

Hamdi, H., & Sbia, R. (2013).Dynamic relationships between oil revenues, government spending and economic growth in an oil-dependent economy.*Economic Modelling, 35*(C), 118-125.

Ighodaro, C. A. U., & Oriakhi, D. E. (2010). Does the Relationship between Government Expenditure and Economic Growth follow Wagner’s Law in Nigeria? *Annals of the University of Petrosani, Economics, 10*(2), 185-198.

Kablan, S., Loening, L., & Tanaka, Y. (2014). Is Chad Affected by Dutch or Nigerian Disease? *Journal of Empirical Economics, 3*(5), 278-295.

Kolawole, B. O., Omobitan, O. A., & Yaqub, J. O. (2015). Poverty, Inequality and Rising Growth in Nigeria: Further Empirical Evidence. *International Journal of Economics and Finance, 7*(2), 51-62.

Maku, O. E. (2009). Does Government Spending Spur Economic Growth in Nigeria? *MPRA Paper* No. 17941.

Michael R (2001). Crude Oil Politics. Atlantic: Monthly April, Transparency International Corruption Perception Index. National Bureau of Statistics (2014). Nigerian Gross Domestic Product Report, Quarter two 2014, Abuja–Nigeria.

Nurudeen, A., & Usman, A. (2010). Government Expenditure and Economic Growth in Nigeria, 1970-2008: A Disaggregated Analysis. *Business Economics Journal, 4*, 1-11.

Odularu, G. O. (2008). Crude Oil and the Nigerian Economic Performance.*Oil and Gas Business*. Retrieved from <http://www.ogbus.ru/eng/>

Ogiogio, G. O. (1995). Government Expenditure and Economic Growth in Nigeria.*Journal of Economic Management, 2*(1), 1.

Oladipo, S. O., & Fabayo, J. O. (2012).Global Recession, Oil Sector and Economic Growth in Nigeria.*Asian Transactions on Basic and Applied Sciences, 1*(6), 29-41.

Olaniyi, O. (1993). Nigeria’s National Defense and Economic Development: An Impact Analysis. *Scandinavian Journal of Development Alternatives, 12*(3), 241-253.

Olaniyi, O. (2001). The oil sector and growth of non-oil sectors in Nigeria (1970-1998): An impact Analysis. Journal of Economics and Allied Fields, 1(2), 1-11.

Otawa, M. (2001). The National Security Strategy of the United States, Washington DC: US Government Printing Office.

Oyinlola, M. A., & Akinnibosun, O. (2013). Public Expenditure and Economic Growth Nexus: Further Evidence from Nigeria. *Journal of Economics and International Finance, 5*(4), 146-154.

Salih, M. A. R. (2012). The Relationship between Economic Growth and Government Expenditure: Evidence from Sudan. *International Business Research, 5*(8), 40-46.

Usman, A., Mobolaji, H. I., Kilishi, A. A., Yaru, M. A., & Yakubu, T. A. (2011).Public Expenditure and Economic Growth in Nigeria.*Asian Economic and Financial Review, 1*(3), 104-113.

Wafure, O. O. (2001). Distress in the banking industry: Causes and Effects 1990 - 1996. Journal of Economics and Allied Fields, 1(2), 85-97.



**Industrialization and the Quest for Economic Diversification in Nigeria: 1970-2017**

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**Abstract**

*The study examines industrialization and the quest for economic diversification in Nigeria. Specifically; it examined the structure and trend of industrial output in Nigeria and evaluates the effect of industrial output for economic diversification in Nigeria. The theoretical framework is the Great Push Theory & Kaldor’s First Law. The research adopted an econometric design and sourced secondary data from Central Bank of Nigeria, National Bureau of Statistics publications and World Bank Development Indicators. Both Descriptive and Analytical tools were employed and the Vector Error Correction Method were used for estimation of the model. The findings of the study based on the impulse response shows that solid mineral (SOM), manufacturing (MAN) and crude petroleum & natural gas (CPNG) exert negative relationship with real gross domestic product while variance decomposition, reveals that CPNG account for the highest percentage contribution followed by solid mineral, manufacturing, private investment (PI), government capital expenditure (GCE) and industrial energy consumption (IEC) respectively. Given the proportionality in the coefficient of SOM, MAN, CPNG, PI and IEC, the study recommends that government of Nigeria should go into public-private partnership (either domestic or foreign) to bring in their technological know-how and financial capability to develop these sub-sector for a diversified economy as against the current mono-economy.*

**Keywords:** Economic Diversification, Economic Growth, Manufacturing Sector, Solid Minerals

**JEL** **Codes**: P33

**1. Introduction**

Prior to the attainment of political independence, the level of industrialization in Nigeria is skewed towards favouring British colonial economic structures (Vent for Surplus paradigm), targeted at increasing the flow of raw materials to British industries (Usman & Ibrahim, 2010). The tendency of the industrial sector to stimulate more economic growth has prompted many economists to formulate theories to encourage industrialization. Famous among the early theories formulated are: Rosenstein-Rodan’s theory of the big push (Rosenstein–Rodan, 1943); the doctrine of balance growth; Hischman’s doctrine of unbalance growth (Hirschman, 1958); the import substitution strategy; and export promotion strategy. Over time, the influences of these theories on policy decisions have been varied.

However, it should be noted that Nigeria is blessed with abundant solid mineral resources that could be beneficial to varieties of industries in the country. These solid mineral resources include Coal, Gold, limestone, bitumen, tin, iron ore, salt among others and these solid mineral resources cut across the states of the federation. With these and other raw materials from agricultural sector, it is expected that Nigeria’s industrial sector should not lack the necessary inputs for its take off in the production of intermediate and finish goods. Nigeria is an agrarian economy with vast arable land, large proportion of the population is into agricultural activities for their livelihood, and statistics shows that Nigeria has over 80% of its land arable but unfortunately, less than 40% of the land is cultivated (NBS, 2012). In addition, Nigeria is among the leading exporter of crude oil in commercial quantities since 1968 and this has remain so making oil money the major source of foreign exchange earning accounting for almost 80%.

The Nigeria industrial sector according to National Bureau of Statistics (NBS, 2012) shows that it has appreciated to engender the growth of Nigerian economy as figure in 1970 of industrial index stood at 41.8%, 119.50% in 1980, the development reflected the increased activities in the electricity, manufacturing, crude oil production and mining sub-sectors. This continues to witness an increase from 130.6% in 1990 to 138.9 in 2000, 184.7% in 2008, which is attributed to the increase in business confidence because of change in regime and new policy measures. Impressively the capacity utilization of the manufacturing sub-sector in 1970 stood at 80.2%, 70.1% in 1980, which is above average and an indication of vibrant and sustainable manufacturing sector. Consequently, capacity utilization of manufacturing sector fell drastically to 40.3% in 1990 and further drop to 36.1% in 2000 slightly after we ushered in new and fourth democratic regime. Although, it appreciated to 55.82% in 2010 and since then it has continues to harvor around 54.76% and 56.61% between 2011 and 2016 (CBN, 2016) respectively, which portends that manufacturing sector in the 1970s felt better when compare to this period of fourth democratic era. This set back in the subsector of industrial sector can be attributed to the focus on crude oil production with high foreign exchange earnings in Nigeria specifically from 1968 and the subsequent oil boom of the 1970s (NISER, 2015) till this current period.

This is undertaken given that industrial development is referred as necessary condition for economic development. Nigeria is still lagging behind as contribution of industrial sector to GDP stood at 24.91% in 2010 and has since drop to 18.3% in 2017 (CBN, 2018). In addition, the economy has continued to witness high import bill annually with adverse effect on macroeconomic indicators. Similarly, the decade infrastructure and neglect is one of the reasons for the current perennial stage. Empirical studies such as Anyanwu, & Kalu (2015), Jelilov, Enwerem & Isik (2016) on the industrial output and the quest for diversification, particularly in developing economies Nigeria inclusive, have produced mixed results as most of the studies look at the aggregate or index of industrial variable. This study will specifically examines the three components of industrial sector (crude petroleum and natural gas, solid minerals and manufacturing sector) simultaneously in addition to variables like investment in capital stock from both private and public sector, industrial energy consumption. The theoretical framework of this study is Great Big Push and Kaldor’s Growth Law, which emphasis on investment in industrial sector because of its capacity to transform primary products into intermediate and finished goods. The study will examine industrial output as a tool for the economic diversification of the Nigeria economy. Specifically, it will (i) evaluate the effect of industrial on the Nigerian economy.

The study is organized logically in four sections to allow for understanding of the subject matter of the research. Section one covered the introduction. Section two dealt with the literature review including conceptual clarification, theoretical framework and review of empirical literature. Section three is about methodology of the study and analysis of the data obtained. Finally, section four presents the conclusion and policy recommendations.

2. **Literature Review and Theoretical Framework**

*Industrialization*

Industrialization is a concept synonymous to the development that took place in Western Europe and North America countries during the 19th and early 20th centuries (Nzau, 2010). According to Adejugbe (2004) industrialization has to do with value addition to human and material resources with the aid of science and technology to produce finish goods and services. To Todaro and Smith (2011), when structural transformation takes place, the contribution to national income by the manufacturing sector eventually supersede that of agricultural sector. The term industrial growth of industrialization has two distinct meanings: it can be conceived as a shift in a country’s pattern of output and work force towards manufacturing or secondary industry (Clunies-Ross, Foresyth & Huq, 2010). O’Sullivan and Sheffrin (2007) defined industrialization as the process of societal and economic change that transforms a human from agrarian to an industrial one.

There three core components of industrial sector namely solid minerals, crude petroleum & natural gas and manufacturing sub-sector. The development of these sub-sectors is primary condition to usher any economy into industrialized nations. Most of the advanced economies (China, USA, Germany, UK, France, Russia etc) today are known for and self-sufficient in the production of finish goods from the three components of industrial sector. Hence, the need for Nigeria to take cue from them and transform these sectors simultaneously so as to reap the maximum benefit. The working definition of this study based on the idea from Adejugbe (2004), O’Sullivan and Sheffrin (2007) and Todaro and Smith (2011) sees industrialization as the process of transforming primary products into finish products using modern production technique.

*Economic Growth and Economic Diversification*

Samuelson (1967) views economic diversification as an act of investing in a variety of assets, mentioned its benefit as that which reduces risk especially in the time of recession, inflation, deflation etc. The idea of depending on one sector of the economy as the engine of growth has the tendency to distortion economic activities during price fluctuations, which is inevitable. A typical example is the case of Nigeria’s mono-economy leading to recession in 2015 because of fall in the price of crude oil at the international market, which resulted to general rise in the price of goods and services, fall in the revenue consequently bringing untold hardship on the standard of living of the people. To this end, Okeke and Okafor (2014) further asserted that diversification entails widening of the economy to create opportunities for diverse economic activities in order to create a broad based economy. It does not necessarily entail increase in output but it enhances stabilisation of economies by diversifying their economic base (Anyaecie & Areji, 2015).

Economic growth has been conceived as an increase in per capita income over a period of time (Clunies-Ross, Foresyth, & Huq, 2010). Increase in productivity was a main concern of the fathers of modern economics, Adam Smith and David Ricardo in the eighteenth century. However, as time evolves, economic growth has gone beyond increase in national output to the need to research out to the most vulnerable people of societies. Because of the level of development among developing economies as postulated in Dudley Seers components of development and suggested by OECD, there is need to ascertain the level and growth of the three subsectors in the industrial sector. Hence, the need for economic diversification.

*Theoretical Framework*

The Great Big Push Theory and the Kaldor Growth Laws (1966) anchor the theoretical framework of this study. Kaldor’s First Law states that there is a close relationship between the growth of manufacturing output and the growth of the gross domestic product (GDP). Kaldor’s First Law concludes that the “manufacturing industry is the engine of economic growth”. The Linear specification of Kaldor’s first law is as follow:

where: gGDP is the growth of total output; and gMANU is the manufacturing output’s growth. The growth of manufacturing sector is expected to spur economic growth. This means that high growth are usually found in cases where the share of manufacturing industry in GDP is increasing (Libanio, 2006). In addition, aside the manufacturing sector, other components of industry this study will incorporate into the above is the solid minerals and oil & gas sector.

On the other hand, for industrial development to take place, argues that a large comprehensive programme is needed in the form of a high minimum amount of investment to overcome the obstacles to development in an underdeveloped economy and to launch it on the path of progress. Then, as now, there were economists who advocated a big push involving a combination of a large increase in capital accumulation and a simultaneous increase in investment in numerous sectors, leading to economic growth and poverty reduction (Easterly, 2006). Taking cue from his quote, for meaningful development to set in, specific amount of resources must be available for all-inclusive programmes. Therefore, Rosenstein-Rodan’s arguments became a major part of the way development economists thought about development problems in the 1950s and 1960s, and this has being taught in development course (Todaro & Smith, 2011). In addition, because of the forward and backward linkages, there is need for modernization of the agricultural sector to feed the industrial sector. Hence, the theory of balanced growth advocated by Rodenstin-Rodan, Ragnar Nurkse and Arthur Lewis, advocated for simultaneous investment in all sectors of the economy to ensure economic growth and development.

*Empirical Review*

Bennett, Anyanwu, and Kalu (2015) investigated the effect of industrial development on the Nigeria’s economic growth from 1973-2013 using OLS (Ordinary Least Square) regression they found that the influence of industrial output on economic growth is not statistically significant. Jelilov, Enwerem and Isik (2016) the impact of industrialization on economic growth: the Nigeria experience (2000-2013) using Ordinary least square (OLS) technique, F-test as analytical techniques. The variables used include GDP as the dependent variable while industrial output, foreign direct investment, interest rate, foreign exchange rate and inflation rate were independent variables. The findings show that industrialization exerts negative impact on economic growth in Nigeria in the long-run.

David, Noah and Agbalajobi (2016) an empirical analysis of the contribution of mining sector to economic development in Nigeria covering the period of 1960 to 2012 using Error Correction Model (ECM). The results also suggest that economic development (per capita income) in the long run and short run is positively associated with value of solid mineral and value of agriculture within the study period. However, the coefficient of per capita income is inversely related to value crude petroleum and gas in the both long and short run equilibrium.

Oburota and Okoi (2017) manufacturing subsector and economic growth in Nigeria using co-integrating test and error correction (ECM) model using the data that covers the period of 1981-2013 under the theoretical framework of Kaldor’s First Law of Growth and the Endogenous Growth Model. Findings from the study showed that manufacturing output, capital and technology were the major determinants of economic growth. Results also confirm that quality of institutions and labour force does not exert any impact on economic growth.

The available empirical works such Bennett, Anyanwu, and Kalu (2015), Jelilov, Enwerem and Isik (2016), reveals that industrialization exert negative relationship to economic growth except for David, Noah, Agbalajobi (2016) whose results shows positive relationship. For this study, the point of departure is more specific on the disaggregated components of industries such as solid minerals, manufacturing and crude petroleum and natural gas. This is in addition to private investment, government capital expenditure and industrial energy consumption to see how this variables help to engender the desired growth of the economy.

3. **Methodology**

The study is an ex-post facto research design, which source secondary data from the Central Bank of Nigeria Annual Statistical bulletin and World Bank Development Indicator. To avoid spurious regression analysis, the Augmented Dicky Fuller unit root test was used to determine the level of stationarity of the time series data covering 1970 to 2017. Finally, analytical statistics of Vector Error Correction Method (VECM) under the VAR framework was used for the analysis.

*Model Specification*

The model for this study is built based on the works of Oburota and Okoi (2017) who also took cue from Kaldor First Law and the law states that there exists a close relationship between the growth of the manufacturing output and economic growth. The linear specification is stated below:

The above model by Kaldor was further transformed, by substituting equation 2 into equation 1, which becomes the model of Oburot and Okoi (2017);

Where:

RGDP = Real Gross Domestic Product (RGDP), CIM = Contract Intensive Money, MANU = Manufacturing Output, GFCF = Capital proxied by Gross Fixed Capital Formation, LABF = Labour Force, TECH = Technology

The formulated model for this study and the departure point is in the investigation of the three disaggregated industrial components namely manufacturing sector, solid minerals and crude petroleum and natural gas. This is in addition to control variables like, private investment, government capital expenditure and industrial energy consumption. The linear specification is stated below:

The explicit form of the model is specified as:

The use of VAR in this study in achieving objective two lies in the predictive and forecasting power especially that it is one of the most flexible method of analysis because it has more efficient coefficient estimates and tool for authenticating results.

The Vector Error Correction Model is given as:

Where:

The time series data of Real Gross Domestic Product (RGDP) is the dependent variable while the independent variables are Solid Mineral Output (SOM), Manufacturing Sector Output (MAN), Crude Petroleum & Natural Gas (CPNG), Industrial Energy Consumption (IEC), Government Capital Expenditure (GCE) and Private Investment proxied by Gross Fixed Capital Formation (PI). Theoretically, it is expected that all coefficients of these variables should exert positive relationship with economic growth within the study period.

*Justification of Variables*

Manufacturing sector output, this is utilised in this model to capture the combined volume of production in oil refining, cement, food, beverage and tobacco, textile, apparel and footwear, wood and wood products, pulp, paper and paper products, chemical and pharmaceutical products, non-metallic products, plastic and rubber products, electrical and electronics, basic metal , iron and steel, motor vehicles & assembly, other manufacturing.

Crude Petroleum & Natural Gas capture the crude oil production with different components with high potentials to support the growth of other sectors since to a large extent, it command some level of high rents in terms of foreign exchange earnings.

Solid minerals comprises of coal mining, metal ores, quarrying & other mining activities. Opportunities abound in the sector, which is expected to make the economy self-sufficient in steel production to support Nigeria’s industrialization, expansion of low cost coal generated power, earn foreign exchange and generated revenue for government at all level.

Government Capital Expenditure (GCE) and Private Investment (proxied by gross fixed capital formation) are used to capture expenditure made on infrastructural development by the government to enhance the growth of the manufacturing and other sectors in the economy. Gross Fixed Capital Formation based on official national account is investment on physical assets and its inclusion in the model will help to ascertain whether the investment in physical asset (infrastructure) has the potentials to bring about growth in industrial sector.

Adequate energy (electricity) to industries to power machines is the one of the major input required for the smooth operation of the industrial sector because relying on standby generator only add or increase the cost of operation, which most times is transferred to the prices of goods and services.

**4. Analysis of Results and Interpretation**

To Examine the Effect of Industrial Output on Economic Growth in Nigeria

*Result of the Unit Root*

To carry out the unit root test, the data were normalized into log form to assume the same unit of measurement. It is based on the obtained log value using excel that the ADF statistics were tested against the 5% MacKinnon critical values. The result as presented in

Table 4.1: ADF Unit Root Test

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Variables | @ Level | @ 1st Diff. | Critical Values | | | Prob. | Order of Integration |
| 1% | 5% | 10% |
| RGDP | -2.55 | -6.91 | -3.58 | -2.93 | -2.60 | 0.0000 | I(1) |
| SOM | -0.22 | -9.08 | -3.58 | -2.93 | -2.60 | 0.0000 | I(1) |
| MAN | -0.08 | -5.57 | -3.58 | -2.93 | -2.60 | 0.0000 | I(1) |
| CPNG | 0.13 | -5.20 | -3.58 | -2.93 | -2.60 | 0.0001 | I(1) |
| PI | -0.12 | -7.69 | -3.58 | -2.93 | -2.60 | 0.0000 | I(1) |
| GCE | -0.78 | -4.79 | -3.58 | -2.93 | -2.60 | 0.0003 | I(1) |
| IEC | -2.52 | -8.32 | -3.59 | -2.93 | -2.60 | 0.0045 | I(1) |

*Source: Extract from E-view 9.0 Output*

The result of the unit root presented in tables 1 shows that Augmented Dickey Fuller statistic indicating that all the variables of – solid mineral, crude petroleum & natural gas, private investment, government capital expenditure and industrial energy consumption became stationary (i.e no unit root) at their first difference that is, I(1). Therefore, this justifies the use of Vector Error Correction Method (VECM), Impulse Response & Variance Decomposition under the VAR framework.

*VAR Lag Order Selection Criteria*

An optimal lag is chosen for the empirical models based on Schwarz Information Criterion, Akaike Information Criterion, Sequential Modified LR Test Statistic, Final Prediction Error and Hannan-Quinn Information Criterion.

Table 4.2: Lag Selection Criteria

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Lag | LogL | LR | FPE | AIC | SC | HQ |
| 0 | -37.13 | NA | 1.75e-08 | 2.01 | 2.29 | 2.11 |
| 1 | 279.53 | 518.17 | 9.38e-14 | -10.16 | -7.89\* | 9.32 |
| 2 | 414.70 | 93.40\* | 3.36e-14\* | -11.85\* | -5.61 | -9.53\* |

*\*indicates lag order selected by the criterion; Source: Extract from E-view 9.0 Output*

An optimal lag of 2 is chosen for the variants of the model.

*Johansen Co integration Test*

The Johansen system framework is employed to test for the presence of co-integrating relationship among the non-stationary variables. The result is presented below:

Table 4.3: Johansen Cointegration Test

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Null Hypothesis | Trace Statistic | 0.05 Critical Value | Null Hypothesis | Max-Eigen Statistic | 0.05 Critical Value |
| r=0\* | 163.22 | 125.62 | r=0\* | 49.79 | 46.23 |
| r<1\* | 118.43 | 95.75 | r<1 | 38.12 | 40.07 |
| r<2\* | 80.316 | 69.82 | r<2 | 32.84 | 33.87 |
| r<3 | 47.47 | 47.86 | r<3 | 19.59 | 27.58 |
| r<4 | 27.88 | 29.79 | r<4 | 13.13 | 21.13 |
| r<5 | 14.76 | 15.49 | r<5 | 8.25 | 14.26 |
| r<6 | 6.51 | 3.84 | r<6 | 6.51 | 3.84 |

*Source: Extract from E-view 9.0 Output*

The trace test and Max-Eigen value test shows a long run equilibrium relationship between the variables in the first and second series. Thus, the null hypothesis of no co-integrating equation is rejected since their statistics are greater than their respective critical values for the co-integrating equation at 5% significance level. This implies a stationary linear combination, as such the non-stationary time series are co integrated.

*Responses of RGDP to SOM, MAN, CPNG, PI, GCE & IEC*

An Impulse Response Function (IRF) traces the effect of a one-time shock to one of the innovations on current and future values of the endogenous variables. The IRF helps to trace the response of real gross domestic product to the components of industrial sectors. Table 4 presents the result of the IRF.

Table 4.4: Impulse Response Function

| Period | RGDP | SOM | MAN | CPNG | PI | GCE | IEC |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **4** | 0.02  (0.04) | -0.01  (0.03) | 0.04  (0.04) | -0.10   (0.04) | 0.02  (0.02) | 0.001  (0.03) | 0.02   (0.03) |
| **7** | -0.02   (0.04) | -0.03  (0.03) | -0.01   (0.03) | -0.10   (0.04) | 0.02  (0.02) | 0.01  (0.03) | 0.04   (0.03) |
| **10** | -0.02  (0.04) | -0.05  (0.04) | -0.03   (0.04) | -0.07   (0.04) | 0.03  (0.03) | 0.02  (0.03) | 0.03   (0.03) |

*Source: Extract from E-view 9.0 Output*

Figure 1 shows the graphical representation of the responses of real gross domestic product to impulses from solid mineral, manufacturing, crude petroleum & natural gas, private investment, government capital expenditure and industrial energy consumption. Real gross domestic product responds negatively to its own shock in the 7th and 10th periods while in the 4th period it responds positively.

Real gross domestic product responds negatively to impulse from SOM, CPNG in the 4th, 7th and 10th periods. The negative sign of SOM in 4th, 7th and 10th periods obtained is not quite surprising going by reality where there are few existing industrial activities going on simultaneously in the solid mineral sector exception of cement industries leaving the harness of the rest mineral resources at a crude way by the local miners. This result is contrary to the findings of David, Noah & Agbalajobi (2016). It is improper for a country like Nigeria blessed with abundant minerals resources like gold, coal mining, metal ore & steel, quarry, tin, still import large proportion of some of the finished products from country like Dubai, China, Russia to meet domestic demand, it shows the perennial stage of the sub-sector and calls for serious attention.

Real gross domestic product responds negatively to MAN in the 7th & 10th periods while it responds positively in the 4th period. This result is in line with the findings of Jelilov, Enwerem & Isik (2016) and contrary to the findings of Oburota & Okoi (2017). The manufacturing sub-sector is the hallmark of the industrial sector because of its transformation mechanism of converting primary products from solid minerals sub-sector, agricultural sector and even crude petroleum & natural gas sub-sector into finish goods. Given its current state, might be the reasons for the negative sign obtained in 7th and 10th periods, which can be attributed to the continuous increase in import bills of various products.

Real gross domestic product responds negatively to impulse from CPNG in the 4th, 7th and 10th periods. The signs is in line with the findings of David, Noah & Agbalajobi (2016) whose result shows negative relationship. Many scholars such as Bennett, Anyanwu, & Kalu (2015) has alluded that foreign exchange earnings from the sales of crude oil has hampered on the development of human capital/resources, which implies that crude petroleum and natural gas sub sector is not all-inclusive given the technological method of production and the Dutch Disease Syndrome as peculiar to Nigeria state.

Real gross domestic product responds positively to PI, GCE & IEC in the 4th, 7th, & 10th periods respectively. For GCE, In reality, Nigeria capital investment are long term project and sometimes it faces financial challenges and administration bottlenecks in terms of change in leadership hence, the reasons for the current state of our infrastructural gap.

Industrial energy consumption issue in Nigeria is worrisome because of inefficiency in the power supply for household consumption and other economic activities. Nigeria power sector faces a lot of challenges such as low gas supply, lack of capacity of the individual investors running the various privatize power plant, inadequate policy framework to support public-private partnership and political will to drive the implementation. Aside the aforementioned, our energy mixed is skewed towards hydro and natural gas with little attention in solar energy, coal, biomass and others and even the hydro and natural gas is yet to reach its maximum potentials. However, the short run result is positive and statistically insignificant.

However, only the impulse of CPNG significantly affects real gross domestic product in the 4th & 7th period (since ½bi>S.E.) while the rest of the impulses shows no significant effect on real gross domestic product in any of the periods (since ½ bi<S.E.).



*Figure 3.1: Impulse Response Function*

*Source: Extract from E-view 9.0 Output*

*Variance Decomposition Analysis*

While impulse response functions trace the effects of a shock to one endogenous variable on to the other variables in the VAR, variance decomposition separates the variation in an endogenous variable into the components shocks to the VAR. Thus, the variance decomposition provides information about the relative importance of each random innovation in affecting the variables in the VAR. The summary of the variance decomposition is presented in a table below.

Table 4.5: Variance Decomposition Analysis

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Period | S.E. | RGDP | SOM | MAN | CPNG | PI | GCE | IEC |
| 1 | 0.53 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | 1.08 | 81.73 | 1.32 | 0.74 | 14.19 | 1.49 | 0.36 | 0.15 |
| 7 | 1.40 | 78.21 | 2.24 | 0.54 | 16.64 | 1.97 | 0.24 | 0.16 |
| 10 | 1.68 | 75.26 | 2.92 | 0.46 | 18.67 | 2.35 | 0.17 | 0.16 |

*Source: Extract from E-view 9.0 Output*

Table 5 displays separate variance decomposition for each endogenous variable. The second column, labeled “S.E.”, contains the forecast error of the variable at the given forecast horizon. The source of this forecast error is the variation in the current and future values of the innovations to each endogenous variable in the VAR. The remaining columns give the percentage of the forecast variance due to each innovation, with each row adding up to 100. Figure 2 shows the combined graph of the variance decomposition of real gross domestic product with respect to the output of solid mineral, manufacturing, crude petroleum & natural gas, private investment, government capital expenditure and industrial energy consumption.

*Figure 3.2: Variance Decomposition*

*Source: Extract from E-view 9.0 Output*

Table 4.5 reveals that 75.26% of the variations in real gross domestic product can be accounted for by its own shocks, while 24.74% of the random innovations to real gross domestic product are accounted for by the variables in the endogenous system. SOM, MAN, CPNG,PI, GCE and IEC account for 2.92%, 0.46%, 18.67%, 2.35%, 0.17% and 0.16% respectively of these innovations.

**4. Conclusion and Policy Recommendations**

The result of the impulse response shows that SOM, MAN and CPNG exert negative relationship with real gross domestic product exception of MAN, which shows positive relationship only in the 4th periods. In addition, variance decomposition, which measures the magnitude of the coefficient, reveals CPNG account for the highest percentage contribution followed by SOM, MAN, PE, GCE and IEC respectively. One of the major challenges confronting the diversification of the Nigerian economy is the capacity of the industrial sector to transform raw materials into finish goods for domestic consumption and subsequently as a source of foreign exchange earnings. The actualization of this requires huge investment across the three sub-sector of the industry but the crude petroleum and natural gas still account for the bulk of the industrial output owing to the mono economy of focusing only crude oil as the major exportable product accounting almost 80% of foreign exchange earnings. The study concludes that, the contribution of industrial sector is skewed towards crude petroleum and natural gas as a dominate sub-sector as against manufacturing sub-sector, which Kaldor’s First Law states it is the engine of economic growth. The findings of this study have refuted the postulation of Kaldor’s First Law and in line with the findings of the empirical work by Jelilov, Enwerem & Isik (2016). This study makes the following recommendations based on the statistical significance of the variable of solid mineral, manufacturing sector, crude petroleum and natural gas, private investment and industrial energy consumption. Given the proportionality in the coefficient of SOM, MAN, CPNG, PI and IEC, the government of Nigeria should go into partnership with private investors (either domestic or foreign) to bring in their technological know-how and financial capability to develop these sub-sector for a diversified economy as against the current mono-economy. This is because, over the years, the government has made a lot of effort to finance and bring to limelight the potentials in the sub-sectors unfortunately; they never see the light of the day. Hence, time to think outside the box by sourcing for private investors. The likes of China, Singapore, Malaysia, Indonesia, Vietnam has done it and revive their ailing sub-sector, as such Nigeria can take leave from them and call a spade a spade.

**Reference**

Anyaechie M.C. & Areji, A.C. (2015). Economic diversification for sustainable development in Nigeria. *Open Journal of Political Science,*5, 87 -94.

Bennett, K.O., Anyanwu, U.N. & Kalu, A.U (2015). The effect of industrial development on economic growth (an empirical evidence in Nigeria 1973-2013). *European Journal of Business and Social Sciences* , 4, 127-140.

Clunies-Ross, A., Foresyth, O., & Huq, M. (2010). *Development Economics.* London: McGraw Hill.

David, O. O., Noah, O.A. & Agbalajobi, S.A. (2016). An empirical analysis of the contribution of mining sector to economic development in Nigeria. *Khazar Journal of Humanities and Social Sciences* Volume 19, Number 1, 2016

Easterly, W. (2006). “Reliving the 1950s: the big push, poverty traps, and takeoffs in economic development”. *Journal of Economic Growth,* vol. 11, pp. 289–318.

Hirschman, A. (1958). *Strategy of Economic Development.* New Heaven, Conn.: Yale University.

Jelilov, G., Enwerem, H.I. & Isik, A. (2016). The impact of industrialization on economic growth: the Nigeria experience (2000-2013). *British Journal of Advance Academic Research,* Volume 5 Number 1 (2016) pp. 11-20

Jhinghan M.L. (2007). *Economics of Development and Planning*. Delhi: Vrinda Publications; 2007

Kaldor N. (1966). Causes of the slow rate ofgrowth of the United Kingdom. Cambridge: *Cambridge University Press*; 1966.

Libanio G. (2006). Manufacturing industry andeconomic growth in Latin America: AKaldorian approach. *CEDEPLAR, Brazil: Federal University of Minas Gerais*; 2006.

Oburota, C.S. & Okoi, I.E (2017). Manufacturing subsector and economic growth in Nigeria. *British Journal of Economics, Management & Trade 17(3): 1-9, 2017.*

Okeke, C.C. & Okafor, J. (2014). Diversification of Nigeria’s economy through agricultural indigenous technology. *Tertiary Counsellors* Vol. 3, 2014

O'Sullivan, A., & Sheffrin, S. (2007). *Economics: Principles in Action.* New Jersey : Prentice Hall.

Ovat O.O. (2011). Do industrial policies promote industrial development in developing countries evidence from Nigeria. Industrial Development: A Catalyst for Rapid Economic Growth. In Udoh E, Ogbuagu UR, Essia, (eds) Industrial Development: A Catalyst For Rapid Economic Growth. *P.N Davision Publications*. Port Harcourt; 2011.

Rosenstein–Rodan, P. (1943). Problems of industrialisation in Eastern and Southern Term Europe. *Economic Journa*.

Samuelson, P. (1967). "General proof that diversification pays,” *Journal of Financial and Quantitative Analysis,* *2*: 1-13.

Todaro, M.P. & Smith, S.C. (2011). *Economic Development* (Eleventh Edition). Pearson Education Limited, Edinburgh Gate, England.

Ozonwanne, M.C. (2015). Economic diversification in Nigeria in the face of dwindling oil revenue. *Journal of Economics and Sustainable Development*. Vol.6, No.4, 2015



**Impact of Public Expenditures on Inclusive Economic Growth in Nigeria: 1980-2017**

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**Abstract**

*This study investigated the impact of public expenditures on inclusive economic growth in Nigeria: 1980-2017. The study employed autoregressive distributed lag (ARDL) model, stationarity test, and other diagnostic tests to investigate whether or not Federal government public expenditures have impact on inclusive economic growth in Nigeria. This study made use of six explanatory variables namely: Federal government public expenditures in agriculture, education, health, internal security, social and community services, and transport and communications to establish relationships with the two dependent variables used (employment growth rate and human development index growth rate). These two dependent variables served as proxies for inclusive economic growth since they contribute to the general standard of living. The study found that a long-run stable relationship existed between the regressors of public expenditure and inclusive economic growth. The t-statistics also revealed that each of the regressors were not statistically significant at 5%. However, the F-statistics revealed that the entire systematic components of each model were statistically significant at 5%. Therefore, the study concluded that the regressors have not significantly contributed to inclusive economic growth individually. However, the F-statistics shows that collectively the regressors have significantly impacted inclusive economic growth in Nigeria. This study recommended among other things that public expenditures should be directed towards inclusive economic activities in a manner that they will create sustainable linkages across economic value chains which will ensure inclusive economic growth in the long run.*

**Keywords:** Employment, Growth Rate, Human Development, ARDL model, Inclusive Economic Growth

**JEL** **Codes**:G24

**1. Introduction**

Economic growth has to be inclusive to ensure the wellbeing of the entire population. Inclusive growth is not only about expanding national economies but also about ensuring that we reach the most vulnerable people of the societies. According to Ali (2007) the equality of opportunity and participation in growth by all with a special focus on the working poor and the unemployed are the very bases of inclusive growth.

Palanivel (2015), recognized multiple definitions of inclusive growth but pointed out that there are some common features, namely: Growth is inclusive when it takes place in the sectors in which the poor work. For example, growth is inclusive if it takes place in agricultural sector where the poor work and occurs in places where the poor lives especially in the undeveloped areas with few resources. Growth is also inclusive if it uses the factors of production that the poor possess and reduces the prices of consumption items that the poor consume namely: food, fuel and clothing.

However, in Nigeria, there is a fair amount of current consensus on the fact that economic growth has failed to be sufficiently inclusive, particularly in the democratic period. It has been increasingly recognized that the growth centered approach to poverty reduction may be a necessary but not a sufficient condition for poverty reduction. Thus, the need to make growth inclusive (social and economic dimensions) should become the centre of government reform agenda. Policies for inclusive growth are important components of most government strategies for sustainable growth. For instance, a country that has grown rapidly over a decade, but has not seen substantial reduction in poverty rates may need to re-focus specifically on the inclusiveness of its growth strategy, i.e. on the equality of opportunity for individuals and firms. Increasing the output of crude oil produced may not lead to increase in employment opportunities, reduction in poverty and inequality because such growth strategy lacks inclusiveness.

One of the problems identified in this study revolves around the fact that the economy is often said to be growing with increase in gross domestic product (GDP) and large budgetary provisions, running into trillions. However, such growth is not inclusive in the real sense of it. Many Nigerians are still living below the poverty line, with high level unemployment rate and Nigeria’s per capita income (PCI) and human development index (HDI) is still among the lowest in the world.

According to Bhagwati (2015) “Inclusive growth would pull the poor into gainful employment, thereby helping to lift them out of poverty and that higher incomes would enable them to increase their personal spending on education and health.” Yet, economic growth in Nigeria has not created meaningful employment, as many of the country’s youth, including those with university degrees, are currently unemployed. In addition, incomes of the majority of Nigerians have not risen, and while access to education and health may have improved in the country, its quality has declined significantly. The main objective of this study therefore is to examine the impact of public expenditures on inclusive economic growth in Nigeria from1980 to 2017.

This study is significant because it paid close attention to the impact public expenditures had on inclusive economic growth. Unlike, previous studies such as Anand and Mishra (2013), Aigbedion and Anyanwu (2015) and so on. This particular study disaggregated public expenditure into three (3) components namely recurrent, capital and total public expenditures and the study examined each of their impact on inclusive economic growth. The significance of this study is further expressed in disaggregating recurrent, capital and total public expenditures into agriculture, education, health, internal security, social and community services and transport and communications. None of the previous studies disaggregated public expenditure in line with this structure. By this disaggregation policy makers can now simply at a glance examine the impact of recurrent, capital and total public expenditures on inclusive economic growth.

The study made use of secondary data from 1980 to 2017. The reason for this period is that, the researcher believes that this period is long and adequate enough to cover all the trends and structural variations in the Nigerian economy. The study had two (2) dependent variables which served as proxy for inclusive economic growth namely Employment Growth Rate (EGR) and Human Development Index Growth Rate (HDIGR).

The reason for choosing Employment Growth Rate (EGR) as dependent variable lays in the fact that employment can be ameans of contributing to public good, reducing inequality, securing livelihoods and empowering individuals. Work allows people to participate in the society and provides them a sense of dignity and worth. In addition, work that involves caring for others or voluntarism builds social cohesion and strengthens bonds within families and communities. These are all essential aspects of inclusive economic growth. And Human Development Index Growth Rate (HDIGR) is also used as dependent variable because Human Development Index (HDI) is a summary measure of average achievement in key dimensions of human development namely, a long and health life, being knowledgeable and having a decent standard of living.

This study also had independent variables which included recurrent, capital and total public expenditures in the following sectors agriculture, education, health, internal security, social and community services, transport and communications. Although, we have three (3) tiers of government in Nigeria Local, State and Federal. All the above public expenditures were based on Federal government expenditures.

***2.* Literature Review and Theoretical Framework**

The concept of inclusive growth in development literature has not enjoyed a universal definition. While some scholars’ definitions of inclusive growth are interchangeable with pro-poor growth, others incorporate non-income dimensions (non-income factors affecting the poverty elasticity of growth). For instance, (Anyanwu, Adam and Areo 2018) noted that inclusive economic growth is the growth that ensures that all segments of the society especially the poor participate in contributing to wealth creation through employment opportunities and benefit in terms of improved social welfare. (Ranieri and Ramos, 2013) argued that inclusive growth involves improving the lot of underprivileged people in particular and overall making opportunities more plentiful while lessening barriers to the attainment of better living conditions. In the same vein, Anders and Sperling(2013), noted inclusive growth in terms of growth that is delivered by the inclusion of more people in the production of wealth, allowing them to benefit from overall economic development. (Paramasivan, Mani, and Utpal, 2014) pointed-out that inclusive growth is about achieving income growth while reducing inequality, improving social opportunities, ensuring equality of access (to services and markets), and protecting the vulnerable.Inclusive growth is a growth that combines the increased participation of poor and marginalized people in economic processes, particularly through employment, with increased sharing in the benefits of growth that is realized through rising incomes that accrue to the poor as well as increased social welfare benefits (Obadan, 2016). Inclusive growth is “growth that not only creates new economic opportunities, but also one that ensures equal access to the opportunities created for all segments of society, particularly for the poor” (Ali, 2007).

[Public expenditure](http://kalyan-city.blogspot.com/2011/02/what-is-public-expenditure-meaning-and.html) refers to government expenditure i.e. government spending. It is incurred by Federal, State and Local governments of a country. According to (Central Bank of Nigeria, 2015) Public expenditure can be defined as, "The expenditure incurred by public authorities like Federal, State and Local governments to satisfy the collective social wants of the people.” According to Central Bank of Nigeria (2009)recurrent public expenditures are consumption expenditures incurred on civil administration, defence forces, public health and education, maintenance of government machinery. This type of expenditure is of recurring type which is incurred year after year. On the other hand, capital expenditures are incurred on building durable assets, like highways, multipurpose dams, irrigation projects, buying machinery and equipment. They are non recurring type of expenditures in the form of capital investments. Such expenditures are expected to improve the productive capacity of the economy and create employment opportunities which are one of the hallmarks of inclusive growth (Goldsmith 1969).

According to (Nurkse, 1950)balanced growth theory is relevant to Public expenditure on inclusive growth because it stressed that, as an economy grows, there is the need for all the sectors to grow to support each other. The interconnectedness of different sectors implied that growth was required across the economy at a constant rate. This view suggested a clear role for government in supporting those sectors that might not ‘naturally’ grow, or might lack investment from the private sector. If all parts of the economy need to grow, then government should support those sectors that might not naturally develop.

Romer is credited with stimulating New Growth Theory. According to (Romer, 1994). The new growth theory is often called “endogenous” growth theory, because it internalizes technology into a model of how markets function. Second, new growth theory holds that unlike physical objects, knowledge and technology are characterized by increasing returns, and these increasing returns drive the process of growth. The new growth theory is relevant to public expenditure on inclusive growth because public expenditures in social capital is subject to market failure and New Growth theorists argue that government should allocate resources to compensate for this failure.

Wagner (1893) the German economist made an in-depth study relating to rise in government expenditure in the late 19thcentury. Based on his study, he propounded a law called "The Law of Increasing State Activity".(Wagner, 1893) law states that "as the economy develops over time, the activities and functions of the government increase". Wagner's Statement indicates the following points: First, in progressive societies, the activities of the central and local government increase on a regular basis. Secondly, the increase in government activities is both extensive and intensive. Thirdly, the governments undertake new functions in the interest of the society. Fourthly, the old and the new functions are performed more efficiently and completely than before. Fifthly, the purpose of the government activities is to meet the economic needs of the people and to advance inclusive growth. Sixthly, the expansion and intensification of government function and activities lead to increase in public expenditure. Lastly, though Wagner studied the economic growth of Germany, it applies to other countries too both developed and developing.

Peacock and Wiseman (1967), hypothesis of public expenditure is based on their empirical study conducted in United Kingdom, during the period 1890 to 1955. Here also like (Wagner 1893) these economists noted the relationship between growth of an economy and public expenditure. But there is wide difference between these two theories. Here, (Peacock and Wiseman, 1967) asserted that, public expenditures will increase with respect to the growth of an economy. But the growing trend will not be like in the Wagner’s (1893), theory. Further, it will be in a step like manner. According to this hypothesis, there are three basic effects in an economy. They are displacement effect, inspection effect, and concentration effect.

Clark (1980) idea of public expenditure is associated with the idea of tax tolerance. He noted that, public expenditure should not exceed more than 25 percentage of the total expenditure since it may create inflation even in the balanced budget. Further, higher public expenditure will increase the income of the people which may tend to reduce production because of fear of higher tax payment among the people.

Okafor and Kenneth (2016) studied whether public expenditure has induced employment opportunities in Nigeria. The study revealed that deficit financing of recurrent expenditure was the most important single factor inhibiting public expenditure from inducing inclusive economic growth for employment generation. The study recommended that to ensure its efficiency, tax policy, pricing policy, exchange rate policy and credit policy should form integral components of a country’s employment policy.

Golit and Yilkudi (2015) employed the auto-regressive distributed lag (ARDL) model to investigate whether or not the pattern of production matters for inclusive economic growth in Nigeria and, if yes, what pattern of production offers the best opportunity for the achievement of inclusive economic growth? The finding revealed that Agriculture, manufacturing and trade were found to be the key sectors for driving inclusive economic growth where the country’s overriding interest is in employment and poverty reduction.

Ozurumba and Amadi (2015), examined the sectoral performance and inclusive economic growth in Nigeria from 1990 to 2013. They used per capita income and human development index to serve as proxy for inclusive economic growth. Six explanatory variables (the GDPs of agricultural, oil and gas, telecommunication, manufacturing, financial institutions and electricity sectors) were specified and used to establish a relationship with human development index and per capita income using the vector autoregressive (VAR) approach. Their study found that the selected explanatory variables had no significant relationship with per capita income and human development index. Based on their findings their work concluded that the selected sectors of the economy do not contribute significantly to the development of the Nigerian economy.

Sodipe and Ogunrinola (2011) investigated the employment and inclusive economic growth relationships in the Nigerian economy adopting a simple model and using the ordinary least square technique, their study showed a positive and statistically significant relationship between employment level and inclusive economic growth in Nigeria while a negative relationship was observed between employment growth rate and GDP growth rate in the economy. Thus, the study recommended increased labour-promoting investment strategies that will help reduce high current open unemployment in Nigeria.

This study adopted an endogenous theory of economic growth put forward by Romer and Lucas. This is because the variables considered in this study such as employment growth rate, human development index growth rate, and public expenditures in agriculture, education, health, internal security, social and community services, transport and communications were all determined within the Nigerian economy. The public expenditures which are independent variables that impact inclusive economic growth; which is the dependent variable; are part and parcel of the Nigerian economy and not gotten outside it.

Endogenous growth theory holds that inclusive economic growth is primarily the result of endogenous and not external forces (Romer 1994). Endogenous growth theory holds that investment or public expenditure in human capital, innovation, and knowledge are significant contributors to inclusive economic growth. The theory also focuses on positive externalities and spillover effects of a knowledge-based economy which will lead to inclusive economic growth.

This study adopted the simplified version of growth framework first developed by Romer (1990), Grossman and Helpman (1991) and (Aghion and Hawitt,1992). In adopting this framework therefore, this study would take a fairly mechanical view of the production in new technology of labour (human capital) in the traditional Cobb-Douglas production function in which labour, capital and technology are combined to enhance productivity. The model would normally comprise of four variables viz: labour (L), capital (K), and technology (A), and output/income (Y).The framework assumes two sectors: the goods-producing, where output is produced and the R&D sector, where additions to stocks of knowledge are made.

Y(t)={(1-αk)k(t)}α[A(t)(1-αL)L(t)]1-α  0 < α < 1 2.1

From equation 2.1 αL of the labour force is used in the R&D sector and1-αLin the goods producing sector. Similarly, αkof the capital stock is used in R&D and the rest in goods producing sector. More so αL and αk are assumed exogenous and constant, because the use of an idea or piece of knowledge in one place does not preclude it from being used elsewhere. The equation 2.1 assumes constant return to capital and labour, i.e with a given technology, doubling the inputs in-turn doubles the amount that can be produced.(Barro,1991) advocated the importance of capital and technology in the process of inclusive economic growth. Drawing from Romer’s (1986), path breaking model, some scholars have harped on the critical role human capital played in the growth process. For instance, models developed by Aghion and Howitt (1998) emphasized the role of technological change, (Grossman and Helpman,1991) model stressed impediments to adopting new methods or technology and (Harberger, 2005) which canvassed costs of reduction in the production process resulting from technological innovation as few examples of such. These scholars held the view that through more efficient processes, output could be increased while unit cost could be lowered.

Hence, restricting the model to new ideas that depends on the quantity of labour and capital engaged in research and level of technology is given thus:

A\*(t)=δ [αkk(t)]β[αLL(t)]ρA(t)θ δ >0, β0, ρ0 2.2

Similarly, because two stock variables in the equation whose values are considered endogenous, k and A, it makes it more complicated to analyze; as such we restrict the model without capital by setting β and α to zero, (Romer, 2009). When capital is restricted, equation 2.1 becomes:

Y(t)=A(t)[(1-αL)L(t)] 2.3

And the production function for the new knowledge in equation 2.2 would become:

A\*(t)=δ[αLL(t)]ρA(t)θ  2.4

Equation 2.3 implies that output or income per labour (worker) is proportional to A, and thus, the growth rate of output or income per worker equals the growth rate of A, as such, the study would focus on the dynamics of A, which is given by equation 2.4 meaning that the growth rate of A at time (t) denoted by

gA(t)=δαρLL(t)pA(t)θ-1 2.5

This framework, ceteris-paribus, assumes that voting more resources to research would yield more discoveries and improve technology.

**3. Methodology**

*Estimation Technique*

The autoregressive distributed lag (ARDL) bounds test that was developed by Pesaran and Shin (1999) was used for this study because it has certain advantages over other cointergration methods which include it does not require that all variables under consideration be integrated of order zero, order one or fractionally integrated.

This study also conducted unit root test at level and first difference in order to determine univariate properties of the series being examined. To achieve this, the standard procedure of unit root test by (Philips and Perron, 1988) was employed. The Philips-Perron unit root test was used because of its great **advantage** of being a non-parametric procedure*,* i.e. it does not require selecting the level of serial correlation as in ADF. It rather takes the same estimation scheme as in DF test, but corrects the statistic to conduct for autocorrelations and heteroscedasticity (HAC type corrections).

*Model Specification*

This study adapted an econometric model previously used by Golit and Yilkudi (2015) which has been discussed earlier in the literature review. However, this study modified their work, by making use of (recurrent, capital and total public expenditures in agriculture, education, health, internal security, social and community services, and transport and communications) to establish a relationship with these two dependent variables (employment growth rate and human development index growth rate). These two dependent variables served as proxies for inclusive economic growth.

Thus, for recurrent public expenditures, the Models are of the general form:

EGRt = f (RPEEt ,RPEHt, RPEAt, RPEISt, RPETCt ,RPESCt ) 3.1

HDIGRt= f (RPEEt, RPEHt, RPEAt, RPEISt, RPETCt,RPESCt) 3.2

Where: EGRt is Employment Growth Rate proxy for inclusive economic growth, HDIGRt is Human Development Index Growth Rate proxy for inclusive economic growth, RPEE is Recurrent public expenditures in education, RPEH is Recurrent public expenditures in health, RPEA is Recurrent public expenditures in agriculture (food), RPEIS is Recurrent public expenditures in internal security, RPETC is Recurrent public expenditures in transport and communication, RPESC is Recurrent public expenditures in other social and community services.

Equations 3.1 and 3.2 are linearized as:

EGRt-1 =β0 + β1RPEEt-1, + β2RPEHt-1, + β3RPEAt-1, + β4RPEISt-1, + β5RPETCt-1, + β6RPESCt-1 + λεcmt + μt 3.3

HDIGRt-1=β0 + β1RPEEt-1, + β2RPEHt-1, + β3RPEAt-1, + β4RPEISt-1, + β5RPETCt-1, + β6RPESCt-1 + λεcmt + μt 3.4

For capital public expenditures, the Models are of the general form:

EGRt = f ( CPEEt ,CPEHt, CPEAt, CPEISt, CPETCt, CPESCt ) 3.5

HDIGRt= f ( CPEEt ,CPEHt, CPEAt, CPEISt ,CPETCt, CPESCt ) 3.6

Where: EGRt is Employment Growth Rate proxy for inclusive economic growth, HDIGRt is Human Development Index Growth Rate proxy for inclusive economic growth, CPEE is Capital public expenditures in education, CPEH is Capital public expenditures in health, CPEA is Capital public expenditures in agriculture (food), CPEIS is Capital public expenditures in internal security, CPETC is Capital public expenditures in transport and communication, CPESC is Capital public expenditures in other social and community services.

Equations 3.5 and 3.6 are linearized as:

EGRt-1 =β0 + β1CPEEt-1, + β2CPEHt-1, + β3CPEAt-1, + β4CPEISt-1, + β5CPETCt-1, + β6CPESCt-1 + λεcmt + μt 3.7

HDIGRt-1=β0 + β1CPEEt-1, + β2CPEHt-1, + β3CPEAt-1, + β4CPEISt-1, + β5CPETCt-1, + β6CPESCt-1 + λεcmt + μt 3.8

For total public expenditures, the Models are of the general form:

EGRt = f(TPEEt ,TPEHt, TPEAt, TPEISt, TPETCt, TPESCt ) 3.9

HDIGRt= f(TPEEt, TPEHt, TPEAt, TPEISt, TPETCt, TPESCt ) 3.10

Where: EGRt is Employment Growth Rate proxy for inclusive economic growth, HDIGRt is Human Development Index Growth Rate proxy for inclusive economic growth, TPEE is Total public expenditures in education, TPEH is Total public expenditures in health, TPEA is Total public expenditures in agriculture (food), TPEIS is Total public expenditures in internal security, TPETC is Total public expenditures in transport and communication, TPESC is Total public expenditures in other social and community services

Equations 3.9 and 3.10 are linearized as:

EGRt-1 =β0 + β1TPEEt-1, + β2TPEHt-1, + β3TPEAt-1, + β4TPEISt-1, + β5TPETCt-1, + β6TPESCt-1 + λεcmt + μt 3.11

HDIGRt-1=β0 + β1TPEEt-1, + β2TPEHt-1, + β3TPEAt-1, + β4TPEISt-1, + β5TPETCt-1, + β6TPESCt-1 + λεcmt + μt 3.12

β0, β1, β2, β3, β4, β5, β6, > 0

Where: β0 = Autonomous value or the intercept term

β1, β2, β3, β4, β5, β6,  = Policy parameters

μt = Error term

λεcmt = Vector of short run adjustment dynamics.

It was assumed that the error term (μ) conformed to the Ordinary Least Squares (OLS) assumptions.

*A Priori Expectations*

It was further assumed based on a priori that all the parameters would take on values greater than zero (0).The a priori expectation is such that all components of public expenditures are positively correlated with inclusive economic growth. The coefficient of elasticity of each of the public expenditure variables are expected to be positive, that is greater than zero. That is *β1 –β6*are expected to be greater than zero, that is *β1 β2 β3 β4 β5 β6*

*Sources of Data*

The data on public expenditures were sourced mainly from Central Bank of Nigeria (CBN) statistical bulletin (2010) and (2017). The data on Human Development Index (HDI) were sourced from United Nations Development Programme (UNDP) Human Development report (2010) and (2017) while data on employment rate were sourced from National Bureau of Statistics Annual Abstract (2010) and (2017) and Employment Statistics in Nigeria report of National workshop (2010) and (2017). The time series data will cover the period from 1980 to 2017.

**4. Data Analysis and Interpretation of Results**

*Descriptive Statistics*

The descriptive statistics of variables used in the estimation of recurrent, capital and total public expenditures are presented below.

Table 4.1 (a): Descriptive Statistics for Models 3.1 and 3.2

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | EGR | DI | HDIGR | RPEA | RPEE | RPEH | RPEIS | RPESC | RPETC |
| Mean | 2.6 | 0.4 | 0.9 | 13.5 | 83.5 | 48.3 | 83.8 | 50.9 | 12.9 |
| Median | 3.0 | 0.4 | 0.9 | 2.4 | 14.2 | 4.3 | 11.5 | 3.2 | 2.0 |
| Maximum | 15.2 | 0.5 | 3.0 | 65.3 | 390.4 | 257.7 | 410.2 | 281.0 | 90.0 |
| Minimum | -27.0 | 0.3 | -1.5 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Std. Dev. | 5.9 | 0.0 | 0.7 | 18.4 | 119.7 | 74.1 | 119.4 | 92.1 | 20.2 |
| Skewness | -3.2 | 0.3 | 0.4 | 1.3 | 1.4 | 1.5 | 1.3 | 1.6 | 2.2 |
| Kurtosis | 18.7 | 1.9 | 7.4 | 3.6 | 3.8 | 4.3 | 3.4 | 3.9 | 8.0 |
| Jarque-Bera | 437.2 | 2.5 | 31.1 | 10.8 | 13.9 | 17.9 | 10.5 | 17.3 | 67.2 |
| Probability | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sum | 93.9 | 15.8 | 34.3 | 488.5 | 3007.3 | 1739.1 | 3018.4 | 1835.5 | 466.6 |
| Sum Sq. Dev. | 1238 | 0.0 | 17.8 | 11915 | 502058 | 192503 | 499257 | 296944 | 14314 |
| Observation | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 |

*Source: E-views output, version 9.0*

The employment growth rate (EGR) averages 2.60% per annum. It ranges from a maximum of 15.24% to a minimum of -27.02%. It has a standard deviation of 5.9495 while the Human Development Index (HDI) averages 0.439. It ranges from a minimum of 0.378 to maximum of 0.527 with a standard deviation of 0.048. The Human Development Index Growth Rate (HDIGR) has a mean of 0.955 per annum. It ranged from a maximum of 3.01 to a minimum of -1.59.

Table 4.2 (b): Descriptive Statistics for Models 3.5 and 3.6

|  | CPEA | CPEE | CPEH | CPEIS | CPESC | CPETC | EGR | HDIGR | HDI |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Mean | 27.7 | 16.6 | 17.1 | 11.9 | 9.2 | 18.8 | 2.6 | 0.9 | 0.4 |
| Median | 6.0 | 6.1 | 4.5 | 0.0 | 1.3 | 3.8 | 3.0 | 0.9 | 0.4 |
| Maximum | 138.9 | 87.9 | 97.2 | 65.7 | 86.9 | 106.2 | 15.2 | 3.0 | 0.5 |
| Minimum | 0.2 | 0.1 | 0.05 | 0.0 | 0.0 | 0.2 | -27.0 | -1.5 | 0.3 |
| Std. Dev. | 37.1 | 20.9 | 25.3 | 19.3 | 16.4 | 28.1 | 5.9 | 0.7 | 0.0 |
| Skewness | 1.2 | 1.3 | 1.8 | 1.6 | 3.1 | 1.5 | -3.2 | -0.4 | 0.3 |
| Kurtosis | 3.6 | 4.6 | 6.1 | 4.4 | 14.9 | 4.2 | 18.7 | 7.4 | 1.9 |
| Jarque-Bera | 10.1 | 15.6 | 35.4 | 19.0 | 273.4 | 16.7 | 437.2 | 31.1 | 2.5 |
| Probability | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 |
| Sum | 1000 | 600.6 | 616.9 | 428.5 | 331.2 | 680.3 | 93.9 | 34.3 | 15.8 |
| Sum Sq. Dev. | 48228 | 15426 | 22484 | 13106 | 9494.4 | 27691 | 1238.8 | 17.8 | 0.0 |
| Observations | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 |

Source: *E-views output, version 9.0*

The capital public expenditures on agriculture (CPEA) has the mean of 27.78 billion Naira and it ranges from a maximum of 138.90 billion Naira to a minimum of 0.2525 billion Naira with a standard deviation of 37.12. In addition, the capital public expenditures on education (CPEE) has the average of 16.68 billion Naira and it ranges from a minimum of 0.1391 billion Naira to a maximum of 87.90 billion Naira with a standard deviation of 20.99. The Federal government capital public expenditures on health (CPEH) have a mean of 17.14 billion naira and it ranges from a maximum of 97.2 billion Naira to a minimum of 0.0511 with a standard deviation of 25.35.

Table 4.2 (c): Descriptive Statistics for Models 3.9 and 3.10

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | EGR | HDI | HDIGR | TPEA | TPEE | TPEH | TPEIS | TPESC | TPETC |
| Mean | 2.6 | 0.4 | 0.9 | 41.3 | 100.2 | 65.4 | 95.7 | 60.1 | 31.9 |
| Median | 3.0 | 0.4 | 0.9 | 10.0 | 22.5 | 8.4 | 11.5 | 5.4 | 8.4 |
| Maximum | 15.2 | 0.5 | 3.0 | 171.3 | 425.8 | 288.1 | 446.2 | 360.5 | 196.2 |
| Minimum | -27.0 | 0.3 | -1.5 | 0.2 | 0.3 | 0.1 | 0.0 | 0.0 | 0.2 |
| Std. Dev. | 5.9 | 0.0 | 0.7 | 51.8 | 135.8 | 92.2 | 136.5 | 103.9 | 46.6 |
| Skewness | -3.2 | 0.3 | -0.4 | 1.0 | 1.2 | 1.2 | 1.2 | 1.6 | 1.8 |
| Kurtosis | 18.7 | 1.9 | 7.4 | 2.7 | 3.2 | 3.0 | 3.2 | 4.3 | 6.1 |
| Jarque-Bera | 437.2 | 2.5 | 31.1 | 6.2 | 9.8 | 8.8 | 9.7 | 19.8 | 34.7 |
| Probability | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sum | 93.9 | 15.8 | 34.3 | 1487 | 3607 | 2355 | 3447 | 2166 | 1150 |
| Sum Sq. Dev. | 1238 | 0.0 | 17.8 | 94175 | 645871 | 297872 | 652427 | 378060 | 76066 |
| Observations | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 |

*Source: E-views output, version 9.0*

The Federal government total expenditures on internal securities (TPEIS) have a mean of 95.75 billion Naira. It ranges from a maximum of 446.2 billion Naira to a minimum of 0.00 billion Naira. The standard deviation is 136.53.To test for normality of the residuals, Jarque- Bera Statistic for all the variables have probabilities less than 5% significant level except Human Development Index (HDI), so the null hypotheses of normality were rejected, implying that the series were not normally distributed except Human Development Index (HDI).

*Trends Analysis*

The trend of the Human Development Index Growth Rate (HDIGR) shows a high level fluctuation in the trend with a mean of 0.955 and a minimum of -1.59 in the year 1998. The (HDIGR) trend also shows a maximum of 3.01 in the year 2000. The HDI indicates the number of people with access to education and other basic amenities that could promote inclusive economic growth. In summary, the trends of public expenditures in Nigeria is consistent with Peacock and Wiseman (1967) hypothesis which asserted that public expenditure will increase with respect to the growth of an economy and that the growth in public expenditure is a non-linear relationship with the real per capita income.

Figure 4.1: Trends of recurrent public expenditures, employment growth rate and human development index growth rate in Nigeria, (1980-2015)



Source: *E-views output, version 9.0*

Figure 4.2: Trends of capital public expenditures, employment growth rate and human development index growth rate in Nigeria, (1980-2015)



*Source: E-views output, version 9.0*

Figure 4.3: Trends of total public expenditures, employment growth rate and human development index growth rate in Nigeria, (1980-2015)



Source: *E-views output, version 9.0*

*Unit Root Test for Stationarity*

This study conducted unit root test at level and first difference in order to determine univariate properties of the series being examined. To achieve this, the standard procedure of unit root test by (Philips and Perron, 1988) was employed. The Philips-Perron unit root test was used because it has the advantage of making use of non-parametric statistical methods to take care of the serial correlation in the error terms without adding lagged difference terms. (Gujaranti and Porter, 2009).

Table 4.3(a): Unit root test for stationarity of recurrent public expenditure, using Philips-Perron test

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Test statistics | Critical value | Order of integration |
| EGR | -6.197959 | -4.243644xxx | I(0) |
| HDIGR | -14.252879 | -4.252879 xxx | I(1) |
| RPEA | -5.292043 | -4.243644 xxx | I(0) |
| RPEE | -7.934188 | -4.252879 xxx | I(1) |
| RPEH | -9.430942 | -4.252879 xxx | I(1) |
| RPEIS | -9.182842 | -4.252879 xxx | I(1) |
| RPESC | -6.143666 | -4.252879 xxx | I(1) |
| RPETC | -7.500724 | -4.252879 xxx | I(1) |

*Source: E-views output, version 9.0;XXX implies significance at 1%.*

Table 4.3(b):Unit root test for stationarity of capital public expenditure, using Philips-Perron test

| Variable | Test statistics | Critical value | Order of integration |
| --- | --- | --- | --- |
| EGR | -6.197959 | -4.243644xxx | I(0) |
| HDIGR | -14.252879 | -4.252879 xxx | I(1) |
| CPEA | -9.500594 | -4.252879xxx | I(1) |
| CPEE | -3.843706 | -3.544284xx | I(0) |
| CPEH | -4.877134 | -4.252879xxx | I(1) |
| CPEIS | -12.40808 | -4.252879xxx | I(1) |
| CPESC | -6.132345 | -4.243644xxx | I(0) |
| CPETC | -3.652467 | -3.562882xx | I(1) |

*Source: E-views output, version 9.0; XXX implies significance at 1%; XX implies significance at 5%.*

Table 4.3(c): Unit root test for stationarity of total public expenditure, using Philips-Perron test

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Test statistics | Critical value | Order of integration |
| EGR | -6.197959 | -4.243644xxx | I(0) |
| HDIGR | -14.252879 | -4.252879 xxx | I(1) |
| TPEA | -7.809334 | -4.252879xxx | I(1) |
| TPEE | -3.595946 | -3.548490xx | I(1) |
| TPEH | -10.13554 | -4.252879 xxx | I(1) |
| TPEIS | -10.53171 | -4.252879 xxx | I(1) |
| TPESC | -6.359462 | -4.252879 xxx | I(1) |
| TPETC | -6.087190 | -4.252879 xxx | I(1) |

*Source: E-views output, version 9.0; XXX implies significance at 1%; XX implies significance at 5%.*

*Interpretation of ARDL Bounds Test*

*ARDL Bounds test for Long run relationships*

The bounds test results for long run relationships are presented in Table 4.4 (a) for models ( 3.1, 3.2, 3.5, 3.6, 3.9 and 3.10) that is, recurrent, capital and total public expenditures respectively.

Table 4.4 (a):ARDL Bounds Test for Long–Run Relationships

Null Hypothesis: No Long-Run Relationships Exist

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Recurrent Expenditure | | | | Capital Expenditure | | | | Total Public Expenditure | | | |
| Models | Model 3.1 | | Model 3.2 | | Model 3.5 | | Model 3.6 | | Model 3.9 | | Model 3.10 | |
| DV | D(EGR) | | D(HDIGR) | | D(EGR) | | D(HDIGR) | | D(EGR) | | D(HDIGR) | |
| F –Stats | 5.196024 | | 6.545377 | | 5.258498 | | 6.087770 | | 4.841760 | | 6.564562 | |
| K | 6 | | 6 | | 6 | | 6 | | 6 | | 6 | |
| Sig | LB | UB | LB | UB | LB | UB | LB | UB | LB | UB | LB | UB |
| 10% | 2.12 | 3.23 | 2.12 | 3.23 | 2.12 | 3.23 | 2.12 | 3.23 | 2.12 | 3.23 | 2.12 | 3.23 |
| 5% | 2.45 | 3.61 | 2.45 | 3.61 | 2.45 | 3.61 | 2.45 | 3.61 | 2.45 | 3.61 | 2.45 | 3.61 |
| 2.5% | 2.75 | 3.99 | 2.75 | 3.99 | 2.75 | 3.99 | 2.75 | 3.99 | 2.75 | 3.99 | 2.75 | 3.99 |
| 1% | 3.15 | 4.43 | 3.15 | 4.43 | 3.15 | 4.43 | 3.15 | 4.43 | 3.15 | 4.43 | 3.15 | 4.43 |

*Source: E-views output, version 9.0*

The F-statistics for the models were 5.196024, 6.545377, 5.258498, 6.08770, 4.841760 and 6.564562 respectively. This implies that the variables were cointegrated since F-statistics exceeds the upper and lower critical bound values of 1%, 5%, 2.5% and 10% levels of significance. There were cointegration and long-run relationships among the variables. The null hypotheses were rejected.

All the lagged independent variables for recurrent, capital and total public expenditures in agriculture, education, health, internal security, social and community services, transportation and communications, as shown in Table 4.4 (b) below were all insignificant. The t-statistics were all less than 1.697 at 5% level of significance. Therefore, the variables do not contribute significantly to the changes in the dependent variables.

The values of R – squared of 0.583, 0.637,0.642, 0.621, 0.606 and 0.639 for models 3.1, 3.2, 3.5, 3.6, 3.9 and 3.10 respectively means that 58.3% , 63.7%, 64.2%, 62.1%, 60.6% and 63.9% of the variability in the dependent variables EGR and HDIGR were explained by the estimated equations in the aforementioned models.(i.e systematic component of the model consisting of all the predetermined variables) and 41.7%, 36.3%, 35.8%, 37.9%, 39.4% and 36.1% were left unexplained by the aforementioned models respectively. While t–statistics explains the significance of each regressor, F–statistics explains the significance of the entire systematic components of the equation.

The F–statistics values for Models 3.1, 3.2, 3.5, 3.6, 3.9, 3.10 were 5.20, 6.55, 5.61, 6.09, 4.80 and 6.56 with the probability ofF–statistics being 0.00085, 0.00017, 0.0004, 0.0003,0.0012 and 0.00016 for the aforementioned Models respectively. This means the entire Models were significant at 5% therefore, the null hypotheses were rejected.

Table 4.4 (b): ARDL Bounds Test

|  | Recurrent Expenditure | | Capital Expenditure | | Total Public Expenditure | |
| --- | --- | --- | --- | --- | --- | --- |
| Models | Model 3.1 | Model 3.2 | Model 3.5 | Model 3.6 | Model 3.9 | Model 3.10 |
| Dependent  Variable | D(EGR) | D(HDIGR) | D(EGR) | D(HDIGR) | D(EGR) | D(HDIGR) |
| Independent  Lagged Values of Public Expenditures | Coefficient &  t-statistics | Coefficient &  t-statistics | Coefficient &  t-statistics | Coefficient &  t-statistics | Coefficient &  t-statistics | Coefficient &  t-statistics |
| C | 0.1997  (3.2192) | 0.0043  (2.6511) | 0.1755  (3.1852) | 0.0041  (2.5216) | 0.2106  (3.3856) | 0.0041  (2.4060) |
| Agriculture | -0.0024  (-0.7742) | 9.96E-05  (0.9471) | 0.0063  (1.4673) | 3.90E-05  (0.3664) | -0.0009  (-0.3294) | 7.90E-05  (0.9283) |
| Education | -0.0010  (-0.4775) | -5.16E-05  (-0.7388) | -0.0033  (-0.8102) | 2.65E-05  (0.2006) | -0.0002  (-0.0775) | 6.94E-06  (0.0846) |
| Health | 0.0016  (0.5164) | 1.11E-06  (0.0103) | -0.0054  (-1.2368) | 1.52E-06  (0.0149) | -0.0011  (-0.3610) | -9.34E-05  (-0.8842) |
| Internal Security | -0.0005  (-0.2475) | 6.86E-05  (1.0351) | -0.0031  (-0.8899) | 7.93E-05  (0.6234) | 0.0007  (0.4561) | 7.23E-05  (1.2625) |
| Social and Community  Service | 0.0001  (0.1024) | -1.10E-05  (-0.3337) | -0.0013  (-0.5021) | 6.14E-05  (0.6770) | -0.0005  (-0.3103) | -1.93E-05  (-0.3902) |
| Transport & communications | 0.0047  (1.5659) | -7.08E-05  (-0.6923) | 0.0008  (0.2156) | -9.24E-05  (-0.6864) | 0.002245  (0.8782) | -6.38E-05  (-0.7602) |
| R2 | 0.5831 | 0.6380 | 0.6424 | 0.6210 | 0.6056 | 0.638648 |
| F – Statistics | 5.1960 | 6.5454 | 5.6138 | 6.0877 | 4.7998 | 6.564562 |
| Prob(F-Statistics) | 0.0009 | 0.0002 | 0.0003 | 0.0002 | 0.0011 | 0.000162 |
| AIC | -0.2487 | -7.0272 | -0.3432 | -6.9816 | -0.2454 | -7.029105 |
| SIC | 0.1104 | -6.6681 | 0.0607 | -6.6224 | 0.1585 | -6.669962 |
| Durbin Watson DW Stat | 1.9939 | 2.0926 | 2.0172 | 2.1010 | 2.0010 | 2.180456 |

Source: *E-views output, version 9.0*

The Durbin–Watson DW statistics values 1.99, 2.09, 2.02, 2.10, 2.00 and 2.18 for the aforementioned Models respectively means autocorrelation is negligible. Therefore, there were no autocorrelations in the models. Meaning the error term of the successive models or equations was independent of each other.

Other tests of fitness of fit such as Akaike Information Criterion (AIC) were at the values of -0.2487,-7.0272, -0.3432, -6.9816, -0.2455 and -7.0291 for the aforementioned models respectively. These values were low which makes them good.

*Policy implications of Findings*

This study revealed a stable long run relationship between the regressors of public expenditure and inclusive economic growth. By implication the Federal Government macroeconomic policies have relatively been stable and the parameters of the models were also stable as depicted by the cusum diagrams in the appendix and the F-statistics. Therefore, consistent increase in public expenditure will further promote inclusive economic growth.

The t-statistics which explains the significance of each regressor indicate that individually the regressors failed to adequately impact inclusive economic growth. However, the F-statistics which explains the significance of the entire systematic components of the six (6) models were all statistically significant at 5% level. This implies that collectively the regressors have significant impact on inclusive economic growth. Therefore, policy makers should take advantage of the collective influence these sectors have on inclusive economic growth and further explore more avenues such as National Economic Empowerment and Development strategies (NEEDS), N-power and so on to make economic growth more inclusive.

**5. Conclusion and Recommendations**

It was obvious from the study that recurrent, capital and total public expenditures in agriculture, education, health, internal security, social and community services, transport and communications do not have significant impact on inclusive economic growth individually. However, they have significant impact collectively. Therefore, this study recommends the following:

In order for public expenditures to further have impact on inclusive economic growth; the Central Bank of Nigeria (CBN) should intensify efforts towards bringing about financial inclusion through financial literacy programmes. This will enhance public awareness on the availability of financial products in sectors such as agriculture, education, health and so on. The Central Bank of Nigeria (CBN) should also sustain and improve upon her efforts at financial inclusion through direct intervention funds in various programmes and projects across the country especially in areas such as agriculture, education, internal security, health and so on.

The government through the Ministry of Budget and Planning should formulate and implement institution strengthening policies in the areas of agriculture, education, health, internal security, transport and communications and other life enhancing programmes that can specifically help to reduce income inequality and poverty in the country. Examples of such life enhancing programmes in the past were Better Life for Rural Women, National Economic Empowerment and Development Strategy (NEEDS), Petroleum Trust Development Funds, N-Power and so on. The government through relevant Ministries, Departments and Agencies (MDAs) should also provide an enabling environment that will encourage increased investment in education, agriculture, health, and so on by individuals and the private sectors. Other motivating factors such as Job opportunities, enhanced wage structures and improved working conditions should be provided to encourage inclusive economic growth in Nigeria.

Since capital public expenditures is important in determining inclusive economic growth, sustained government spending on infrastructural development is important in enhancing financial inclusion and inclusive economic growth in Nigeria. The current paradigm where recurrent expenditures is more than capital expenditures should be checked. The government through her relevant Ministries, Departments and Agencies (MDAs) should also increase her public expenditures on social and economic infrastructures and other life enhancing programmes that can specifically help reduce inequality, unemployment and poverty. This will also help to enhance the efficiency of labour and increase productivity and by implication inclusive economic growth. A situation where school leavers and graduates are unemployed and left to roam the streets should be checked through appropriate funding and Job opportunities.

There is need to also improve on the performance of the various sectors of the economy for example agriculture, health, education, internal security and so on in order to achieve a sustainable inclusive economic growth. Efforts should also be made to ensure that financial sector services to the real sectors are sustainable to stimulate economic activities in a manner that creates linkages across economic values chains that will assure inclusive economic growth in the long-run.

**References**

Aghion, P. and Howitt, P. (1992), “A model of growth through creative destruction” *Econometrica, 60 (2) pp 323-351.*

Aigbedion, M. and Anyanwu, S. (2015).Government Education Expenditure for inclusive growth in Nigeria: An error correction model. *Cited in the 56th Annual Conference of the Nigerian Economic Society NES (2015) on the theme “Attaining Inclusive Growth in Nigeria: Challenges and Prospects” NES Publication. Ibadan.*

Ali, I. (2007). ‘Inequality and the Imperative for Inclusive Growth in Asia’, *Asian Development Review, Vol. 24, No. 2.*

Ali, I. (2007). “Pro-Poor to Inclusive Growth: Asian Prescriptions”. *ERD Policy Brief Series No. 48, Economics and Research Department, Asian Development Bank, Manila.*

Anand, S. & Mishra, E. (2013) “Determinants of Inclusive Economic Growth” *IMF working paper,* New Delhi.

Anyanwu, S.O., Adam, J.A., & Areo, O.O. (2018). Impact of Public Expenditures on inclusive economic growth in Nigeria. Unpublished Ph.d thesis, University of Abuja, Abuja.

Barro, R.J (1990): Government spending in a simple model of endogenous growth, *Journal of political economy,98 (5).*

Bhagwati, I. ( 2015). “Does Redistributing Income Reduce Poverty?” *Chazen Global Insights*. *India*.

Central Bank of Nigeria. (2009) *Economic and Financial review volume 47 No 2.*

Central Bank of Nigeria. (2009) *Statistical Bullentin Vol. 20.*

Central Bank of Nigeria. (2010) *Statistical Bullentin Vol. 21.*

Central Bank of Nigeria. (2017) *Statistical Bullentin Vol. 24.*

Central Bank of Nigeria. (2015) *Annual Reports and Statement of Accounts Vol. 23.*

Clark, C. (1980) Critical Limit Hypothesis. Theories of Public Expenditure. [*https://www.ukessays.com*](https://www.ukessays.com)*.*

Goldsmith, R. (1969). Financial Structure and Development, New Haven, Yale University Press.

Golit, P.D & Yilkudi, D.J (2015), “Does the pattern of production matter for Inclusive Economic Growth in Nigeria?” *Cited in the 56th Annual Conference of the Nigerian Economic Society NES (2015) on the theme “Attaining Inclusive Growth in Nigeria: Challenges and Prospects” NES Publication. Ibadan.*

Grossman, G.M. and Helpman, E. (1991), Comparative advantage and long run growth, *The American Economic Review, Vol 80, No 4 pp796-815 FEP working paper no. 131 July,2003.*

Gujarati, D.N and Porter, D.C (2009), Basic Econometrics (5th ed) *New York: McGraw-Hill.*

Harberger, A.C (2005); “On the process of growth and economic policy in developing countries,” Bureau of Policy and program coordination,13 USAID.

National Bureau of Statistics (2017), Annual Abstract of Statistics Produced Under the Auspices of Federal Government Economics Reform and Governance Project (ERGP).

Nurkse, R. (1950) Balanced growth theory*.www.economicsdiscussion.net*

Obadan, M. (2016). Strengthening the Bugdet-Plan, link for Inclusive development in Nigeria. *The Nigerian Economic Society. Public Lecture series, No 12 NES Publication. Ibadan.*

Okafor, S. O., & Kenneth, J. (2016). Public spending for growth-induced employment: The Nigerian experience. *British Journal of Economics, Management & Trade,* 12(1), 1-19.

Ozurumba, B.A and Amadi.E (2015) An assessment of Sectoral Performance and inclusive growth in Nigeria (1990-2013). *Cited in the 56th Annual Conference of the Nigerian Economic Society NES (2015) on the theme “Attaining Inclusive Growth in Nigeria: Challenges and Prospects” NES Publication. Ibadan.*

Palanivel, H. (2015). United Nation Development Programme,“ Achieving Growth with Equity,” *Human Development Report.*

Paramasivan, S. V, Mani, K. M, & Utpal C. (2014). A Theoretical Model for Inclusive Economic Growth in Indian Context. *International Journal of Humanities and Social Science Vol. 4, No. 13; November 2014. Retrieved from www.ijhssnet.com. Cited in the 56th Annual Conference of the Nigerian Economic Society NES (2015) on the theme “Attaining Inclusive Growth in Nigeria: Challenges and Prospects” NES Publication. Ibadan.*

Pesaran, M.H and Y. Shin (1999).An autoregressive distributed lag modeling approach to cointegration analysis. *Chapter 11 in S. strom (ed), Econometrics and Economic Theory in the 20th century. The Ragnar Frisch Centennial Symposium cambridge university press, cambridge.*

Pesaran, M.H, Shin,Y and Smith R.J (2001) Bounds testing approaches to the analysis of level relationship *Journal of applied Econometrics, (16) 289-325.*

Pesaran, M.H, and R.P Smith, (1998) Structural analysis of cointegrating VARS. *Journal of Economic surveys (12) 471-505.*

Philips, P.C.B and Perron.P.(1988) Testing for a unit root in time series regression. Biometrika 75(2) 335-346.

Peacock, A.T and Wiseman, J. (1967) Theories of Public Expenditure.[*https://www.ukessays.com*](https://www.ukessays.com)

Ranieri, R. and Ramos, R. A.(2013). Inclusive Growth: Building Up a Concept. International Policy Centre for Inclusive Growth (IPC-IG).*Working Paper number 104, Cited in the 56th Annual Conference of the Nigerian Economic Society NES (2015) on the theme “Attaining Inclusive Growth in Nigeria: Challenges and Prospects” NES Publication. Ipbadan.*

Romer, P. (1994) Romer’s Model of Endogeneous Growth Theory. [www.economicsconcepts.com](http://www.economicsconcepts.com)*.*

Romer, P.M (1994). “The Origins of endogenous growth”. *The Journal of economic perspectives. 8 (1):JSTOR 2138148.*

Romer, P.M (1990); “Endogenous Technological Change” *Journal of Political Economy 1990 (5), 71-75.*

Sodipe, O. A. & Ogunrinola, O. I. (2011). Employment and inclusive economic growth nexus in Nigeria. *International Journal of Business and Social Sciences,* 2(11), 30-46.

Wagner.A (1893) Law of Increasing State Activity.*https://www.ukessays.com.*

**APPENDIX**

Figure (1): Cusum Stability Diagnostics Test for Model 3.1



Figure (2): Cusum Stability Diagnostics Test for Model 3.2



Figure (3): Cusum Stability Diagnostics Test for Model 3.5



*Source: E-views output, version 9.0*

Figure (4): Cusum Stability Diagnostics Test for Model 3.6



Figure (5): Cusum Stability Diagnostics Test for Model 3.9



Figure (6): Cusum Stability Diagnostics Test for Model 3.10



*Source: E-views output, version 9.0*



**Water Supply, Telecommunication and Crop Production for Food Security in Nigeria**

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**Abstract**

*Food security is a high priority in the current government’s political agenda. However, Nigeria’s food security is challenged by several anthropogenic, sociological and policy factors. More so population growth; urbanization, climate change, farmer-herdsmen crisis; land use and water crisis, income distribution and turbulence in global energy, lack of access to robust information communication technology infrastructure and food market is adding to the constraints inhibiting steady growth in agricultural productivity and access to global food supply chain. The variables that were tested are water management, access to land, herdsmen-farmers’ crisis, telecommunication, climate change, farm output, policy, genetically modified crops, urbanization, industrialization, population growth, and national politics. Secondary and primary data was assembled and descriptive statistics used. The study found out that increasing herders’ clashes within farming communities, urbanization, climate change impacts, population growth, genetically modified foods and the perception of the direction of national politics are germane when addressing food security issues in an urban setting in Nigeria. On the other hand, in a rural setting, climate change impact and herdsmen – farmer clashes is paramount. Cross-sectoral policy responses and measures are needed to address the linkages between national politics, urbanization, population, energy, environment, and other development related sectors*

**Keywords:** ICT, Agriculture, Development and Food Security

**JEL** **Codes**:E29, O13

1. **Introduction**

Nigeria’s recessionary pressure set in 2015 and real GDP fell into the negative for more than two consecutive year averaging – 4.78%, compared with the world average of about 1.6% (World Bank, 2017). Growth in Nigeria is expected to exceed 4% in 2018, putting pressure on food prices. Increasing urbanization, herdsmen-farmer crisis, climate change and affluence will put further pressure on food demand (Oluduro, 2015). Nigeria’s appetite for energy and the surging demand for food will worsen the situation. On the other hand, crude oil prices is surging towards to the $80 per barrel mark. The surge in oil prices and government intervention in the agricultural sector is stimulating aggregate demand, increasing fertilizer, and other farmer input costs. According to (FAO, 2018) there were unprecedented increases in the prices of maize (67%) and vegetable oils (59%) during 2017, and these price shocks were transmitted to other food cereals. Global wheat production fell below consumption as much wheat area was displaced by maize. Wheat stocks reached historic lows and wheat prices increased by about 30% (World Bank, 2018). In the same stroke, structural changes in global grain markets also increased rice prices, by around 40% between 2016 and 2017, and thus endangered food security in Nigeria (OECD, 2018). Turbulence in global energy and food markets can impact food security and poverty reduction in Nigeria (Akramov, 2017). Sudden increases in food prices due to mismatch in the market or crisis of any kind can greatly impact urban and non-agricultural households, and farmers in rural households in several ways (Asogwa & Umeh, 2012). Price fluctuations can have adverse impact across household types in Nigeria due to heterogeneity in consumption behaviour and income sources, with possible policy implications (IFAD, 2017). The cost of intervention to enhance food security of these vulnerable households can be daunting, requiring as much as 5% of Nigeria’s GDP (FAO, 2018). Population growth, urbanization, climate change, farmer – herdsmen crisis, income and consumption growth, will pose ever greater challenges to maintaining food security in Nigeria. Massive agricultural projects will require more land and water resources, with impacts regarding resource allocation to food production (Cabot, 2017). Pro-poor agricultural technologies and cash crops might provide opportunities to improve food security (IFAD, 2017). Investments in infrastructure, institutions and barrage of new policies are in Nigeria to achieve these goals. Water security is paramount while efforts must be harnessed to limit loss of fertile land to climate change, herdsmen farmer crisis, and urbanization. Given these challenges, we are using this paper to review the role of land, water, institutions, in promoting food security and reducing extreme poverty in Nigeria.

**2. Literature Review**

*Economic Reforms and food security in Nigeria*

Nigeria embarked upon ambitious economic reforms since the Babangida administration using the Structural Adjustment Programme, SAP, as a pretext to launch self-sufficiency and food security more than 30 years ago. Price distortions were smoothened and land rights were realigned. Bold policies and institutional reforms were implemented to motivate greater production by the rural households (Babatunde, Omotesho, Sholotan, 2007). The impacts on agricultural production, food security and poverty reduction have been documented. The reforms which at one time was purported to have lifted millions out of extreme poverty in rural residents stands to be studied more as an interim World Bank report published 2018 asserts that Nigeria has over taken India as the country with the highest number of abject poor in the world..

Prior to SAP and all the subsequent these agrarian reforms, much of Nigeria was a subsistent agricultural society. Rapid economic reform and the impact that was observed was because the large agricultural sector had surplus Labour over the years, coupled with the revolution in other sectors such as the banking and telecommunication, this led to massive reallocation of labour which allowed groups to gain, (Babatunde, Omotesho, Sholotan, 2007). Economic reform often generates major gain and losses and the distribution of impacts differs across the spectrum of society. It is pertinent to assert that in terms of food security and equity, Nigeria’s peasant population is very crucial and vital.

During the 1980s to 2014, agricultural productivity and per capita income rose, declined and staggered. Many farmers shifted to higher valued crops and food exports grew as well (FAO, 2017). With sustained growth in agriculture, rural incomes rose dramatically, rural incomes rose on the average, lifting millions out of poverty temporary (IFAD, 2017). Despite these notable achievements, the rural and urban income gap remains wide and inequitable in Nigeria. Urbanization, climate change, herdsmen – farmer crisis and increasing affluence are placing new demands on food production (Cabot, 2017), requiring more land, water, environmental initiatives, dialogue and mutual coexistence. As a result, the overuse, bloodshed, degradation of resources have increased (Mortimore, 2013)

*Challenges to food security*

The challenge of maintaining food security while the population and income increase, herds men farmer crisis and climate change mount pressures is a classic research theme and a high priority issue on the Nigerian agenda. Seven core factors influence the pace of increasing food demands: population growth, urbanization, herdsmen – farmer crisis, climate changes, industrialization and changes in lifestyle and consumption coupled with major shifts in political and economic arrangements (Mortimore, 2013; Cabot, 2017; FAO 2018). All of these factors are at work in Nigeria. The challenge of maintaining food security will remain substantial, in part because Nigeria’s endowment of land and abundant water resources, which on a per capita basis is notably below the world standard.

In the next 50 years, Nigeria’s population is expected to increase by about over 100 million (CBN, 2017) to over 250 million. Rural to urban migration, the growth of cities and industry, and changes in consumption patterns that accompany rising incomes may place additional pressure on land and water resources. Nigeria’s demand for meat and dairy products, requires substantially more water in the production process than grains, will continue to exacerbate the situation (Ibok, Idiong, Brown, & Okon, 2013). In the same vein, more land will be needed for transportation infrastructure, grazing of animals, housing and energy generation to support the increasing population.

Innovation in technology and policy will be needed to maintain food security in Nigeria. Resources must be used efficiently and carbon emissions must be reduced to maintain environmental standards. Producing crops for biofuel in the future will certainly divert resources away from food production. Developing viable alternate to fossil fuels which Nigeria depends on for over 75% of its revenue, that reduce or negate the demand for biofuels might reduce the pressure on land and water resources in ways that enhance efforts to combat food insecurity. However, much will depend on the pace of technology development and how the global markets respond to the climate change.

*Access to Arable Land*

Land use changes in Nigeria are basically driven by the increasing demand for food for human and animal population (Otaiku, 2018) and other very sensitive economic and political factors (Cabot, 2017 & FAO, 2018). In Nigeria for instance, local or community and formal land sales are an important source of revenue in many areas. In 1985, about 74% of Nigeria’s land was devoted to agriculture (Otaiku, 2018). The cultivated area was about 46 million ha. The amount of cultivated land per capita was only 0.098ha, much less than the world average of 0.236ha. The per capita value has continued to decline with Nigeria’s increasing population, despite a substantial deployment of new agricultural policies in the country. For instance, between 1999 and 2014 the cultivated area decreased from 76.3 million to 68.5 million ha (a net loss of 7.8 million ha) or % (Ibok, Idiong, Brown, & Okon, 2013). Much of the loss was due to structural changes within agriculture such as the conversion of lands into industrial and residential areas. (Cabot, 2017) since the 2015, the population explosion, migration and climate has triggered competition for available land resources which has resulted in violence and bloodshed. This mass relocation of farmers as internally displaced refugees have caused substantial farmland loss (FAO, 2018). The major sources of changes in cultivated area (IFAD, 2017)

The potential impacts of changes in cultured area on food production and other eco system values vary with the sources of those changes. For instance, offering fertilizer discounts or improved seeds varieties cannot offset the productivity loss. The conversion of fertile land to non – agricultural uses is the primary threat to Nigeria’s continued capacity to produce sufficiently (Babatunde, Omotesho, Sholotan, 2007; Cabot, 2017). Cultivated area has increased in some areas has partially offsets losses in the food grid. (FAO, 2018). This gain, however, has not been achieved without environmental harm. Long term studies in Nigeria have identified some prominent land degradation processes: desertification in the North, secondary salinity, deforestation, loss of grassland and wetlands in the South. (IFAD, 2017)

The transition toward intensive but more sustainable land use systems is more important for food security than further intensification alone. Maintaining environmental standards should receive less emphasis than increasing food production (Otaiku, 2018). Nigeria must make commitment to expanding its arable land for true progress towards the goal of national food security (Cabot, 2017). Such a program should have two critical elements: (1) limiting the converting of arable land to non-agricultural purposes (2) implementing the various policy initiatives designed over the years that optimizes the comparative advantages across the senatorial zones in Nigeria.

*Food production*

Nigeria has made impressive attempts at achieving food security. Since the late 1980s when Nigeria started the SAP and Directorate for Food and Rural infrastructure, DFFRI which prompted the implementation of rural economic reforms, and food production increased substantially. From 1988 through 2014 total output increased by over 156 million tons or over 69%, despite a 9% decrease in the area deployed for production. The momentum to reform Land access started in the pre SAP era was sustained in the 1990s, however the food production reached a new high. Continued gains in food production is needed in Nigeria, where more than 80 million workers, or about half of the country’s work force are actively engaged.

Technology adoption accounted for an estimated 32% of the increase in productivity during 1990 to 2015, while institutional reforms accounted for 24% (IFAD, 2017 & FAO 2018). Most of the increase in total factor productivity is attributable to yam, corn and rice (Ibok, Idiong, Brown, & Okon, 2013). National and international investment in new technology and continued institutional and policy reforms will continue to be crucial.

*Water resources*

Urbanization and industrialization mounts pressure on water supply and availability of farm, post farm and other agricultural activities in Nigeria (Olukunle, 2013). Invariably, fall in water supply places a limit on agricultural development. A clear understanding of the issues and trends in Nigeria’s agricultural water management is germane to support a national development policy that focuses on food security. The federal government must determine the best policies for ensuring that increasing food demands are satisfied, while maintaining environmentally friendly standards that do not stifle our food supply and sustain a desirable economic development (IFAD, 2017)

Nigeria’s annual water supply is equivalent to about 856 m3 per capita or about 13% of the world’s average. Supplies are particularly small in the arid portions of the Northern parts of the country. The average supply is much smaller than the internationally accepted levels of water scarcity (1000 m3 per capita). These use rate of water in Nigeria increased from about 23% of available water resources in 2010 to 27% in 2015. The use rate will continue increasing in the future with increases in population and incomes (Mancosu, 2015)

According to Magaji & Eke (2015) boosting water productivity while in Nigeria will require a range of policies such as efficient deployment of ICT to increase the water use ratio, strengthening water institutions, policy implementation and demand management. Involvement of local, community, state and regional water management operation, recharging of aquifers and greater use of clean technologies (IFAD, 2017) and finally, on farm management practices that protect irrigation water supplies from pollution agents.

*Information Communication Technology, ICT*

Ozowa (2010) asserted that deliberate efforts have been made by international donors and African countries to bring about agricultural development. Much of the setback is attributed to non-integration of agricultural information with other development programmes/sectors to address the numerous related problems that face farmers. Magaji & Eke (2013) and Magaji & Eke (2015) observed that information is an essential ingredient in development programmes. Practical approaches to the integration of Information and Communication Technology (ICT) in agriculture can be done through providing accurate, timely, relevant information and services to the farmers, thereby facilitating environment for more remunerative agriculture.

Furthermore, with ICT facilities, farmers can be updated on temperature, humidity and rainfall with additional parameters such as atmospheric pressure, solar radiation, and wind speed and soil moisture. Others are crops, crop management techniques, fertilizers and pesticides, and many other agriculture related materials.

Most farmers now have access to commodity prices and market information on real time basis available on the internet, the farming community are now provided with choices they lack before. This has ensured better price realization and stimulated a drive towards better productivity. Again with e-commerce farmers can sell their products online. Information sharing is achieved through computer network which helps in dissemination of research products and messages.

According to Hutchinson and Sawyer (2000) Global Positioning System (GPS) describes the exact latitude and longitude of one’s farm. This enables precise farming which be exploited to control costs and boost crop yield. They added that with GPS, farmers can map and analyze their fields for characteristics such as acidity and soil type. By this farmers will become aware of the latest agricultural tools and methods that make farming easy instead of the use of crude methods.

*Genetically Modified Food Crops*

Genetically modified (GM) food and cash crops are increasingly touted as environmentally safe and fit to help combat global food crisis. For instance, GM cotton requires much less pesticides and has only small impact on yields (Huang; Hu; Rozelle; Quao; & Pray, 2002) In Nigeria, economy-wide assessments show that the impact of GM cotton on Nigeria’s production, trade and welfare outweigh public research expenditures. Small and poor farmers may benefit from GM crops due to higher vitamin content and reduced use of pesticides, which can contribute to improved health (Stein; Sanchdev; & Qaim, 2008). Poor farmers in Nigeria can cultivate a large area of GM crops than small farmers in any other country in the West Africa.

**3. Methodology**

This research uses data from respondents in Benue (North Central, Nigeria) 2018. For this study, we established liaison with 60 farmers in Makurdi, Benue State (Nigeria’s food basket). The analysis is conducted thus: Regressing food security on a number factors such as assess to land, herdsmen farmer clashes, perception of policy reforms, water management, perception of impact of climate change, farmer output, and their perception of genetically modified crops. Their responses are sourced from the questionnaire records. These records also contain certain basic demographic information such as marital status, family size and age. The dependent variable is the outcome for each member first meeting (impression). The key independent variable is their perception of impact on food security. We have data for fifty eight (58) of the sixty that were (60). The Probit model was adopted since its primary data laden with binary responses and the SPSS statistical package was used to process the information.

Yi = α + βiXi + ûi ………………………1

Where Yi is their impact perception on food security variable, while Xi, where I = 1, 2, 3,4,5,6,7,8,9 and 10 representing water management practices, access to Land, herdsmen-farmer crisis, climate change, farm output, impact of government policy, GM crops, urbanization, industrialization, population growth, and national politics are the independent variables in the model.

**4. Discussion of Results**

The value of R-2 = 47.8% for the sampled respondents (rural) and 65% (Urban) shows that the equation captures more of the phenomenon in the Urban setting than the Rural setting. In Markudi, these variables were statistically significant: Herdsmen-farmers’ crisis, Urbanization, Climate change, Population growth, GM crops, and National politics. On the other hand, a typical rural setting in Benue state, Herdsmen-farmers’ crisis and Climate change are significant (Table 1).

Table 1: Food security (Probit)

| Binary Dependent Variables | Estimates  Urban Rural | |
| --- | --- | --- |
| Water Management | 0.054  (0.032) | 0.033  (0.400) |
| Access to Land | 0.013  (0.105) | -0.032  (0.252) |
| Herdsmen-farmer crisis | -0.040\*\*\*  (0.012) | -0.035\*\*  (0.014) |
| ICT | 0.411  (0.025) | 0.394  (0.012) |
| Climate change | -0102\*\*\*  (0.107) | -0.045\*\*\*  (0.011) |
| Farm output | 0.005  (0.054) | -0.013  (0.060) |
| Impact of government policy | 0.083  (0.054) | 0.050  (0.023) |
| GM crops | 0.487\*\*\*  (0.033) | 0.458  (0.050) |
| Urbanization | 0.594\*\*\*  (0.020) | 0.561  (0.180) |
| Industrialization | 0.083  (0.054) | 0.050  (0.025) |
| Population growth | 0.434\*\*\*  (0.035) | 0.470  (0.050) |
| National politics | 0.594\*\*\*  (0.020) | 0.562  (0.174) |
| Number of Observation | 28 | 28 |
| R2 | 0.650 | 0.478 |

*\*Significant @ 10per cent, \*\*significant @ 5 per cent, \*\*\*Significant @ 1 per cent*

**5. Summary of findings**

The national development policy in Nigeria puts food security at the front burner.. form our findings, Nigeria’s food security is challenged by several factors that have been discussed by many authors and researchers, however, conducting a small sample survey and regressing it gave a clearer picture of the core factors that should be prime in tackling Nigeria’s lingering food security crisis. However, various authors proposed several factors: Water Management. Access to Land, National politics, Population growth, Industrialization, Urbanization, GM crops, Impact of government policy, Farm output, Climate change, and Herdsmen-farmer crisis. Conducting a scientific test on these issues revealed a divergence in terms of the urban rural perception of the food security crisis. Herdsmen-farmers’ crisis, Urbanization, Climate change, Population growth, GM crops, and National politics were crucial factors if food security is to be tackled. On the other hand, a typical rural setting in Benue state, Herdsmen-farmers’ crisis and Climate change are the most crucial. ICT has profound impact on agriculture globally but Nigerian farmers seldom feel the impact of agricultural innovations either because they have no access to such vital information or it is poorly disseminate

Therefore, increasing herders’ clashes within farming communities, urbanization, climate change impacts, population growth, genetically modified foods and the perception of the direction of national politics are germane when addressing food security issues in an urban setting in Nigeria. On the other hand, in a rural setting, climate change impact and herdsmen – farmer clashes is paramount. Cross-sectoral policy responses and measures are needed to address the linkages between national politics, urbanization, population, energy, environment, and other development related sectors.

**References**

Asogwa B.C; Umeh J.C (2012). Food security determinants among rural farm households in Nigeria. Proceedings of International conference on Ecology, Agriculture and Chemical Engineering, Phuket, Thailand. December 18th – 19th 2012.

Babatunde, R.O; Omotesho O.A; Sholotan O.S (2007) Factors influencing food security status of rural farming households in North Central Nigeria. Agricultural Journal. 2(3)351 – 357

### Cabot. R (2017) Climate Change, Security Risks and Conflict Reduction in Africa, Hexagon Series on Human and Environmental Security and Peace 12, DOI 10.1007/978-3-642-29237-8\_2.

### <https://www.springer.com/cda/content/document>

Food and Agricultural Organization of the United Nations (2015): World Food Outlook, Nigeria Country Report, Rome, Italy.

Ibok O.W; Idiong I.C; Brown I.N; Okon I.E. (2013). Analysis of food insecurity status of urban food crop farming households in Cross River state, Nigeria. Canadian Journal of Agricultural Science. 246 – 260.

Khan, S; M. Hanjra; Jianxin Mu (2008) Water Management and Crop production for food security in China: A review. Agricultural Water Management Journal 96(2009) 349-360

National Bureau of Statistics (2016) Nigeria’s Gross Domestic Product. Abuja.

The World Bank (2017) World Development Indicators. Washington DC, USA

Oludoro, O.F. (2015) Mitigating the Effects of Climate Change in Sub-Saharan Africa Via an effective International Legal Standard: A Case Study Of Nigeria. PhD dissertation. Available online. www. <https://core.ac.uk/download/pdf/55726133.pdf>

Food and Agricultural Organization (2018). Food Prices monitoring and analysis. [www.fao.org/giews/food-prices/international-prices](http://www.fao.org/giews/food-prices/international-prices)

OECD (2018) Rising Food Prices. [www.oecd.org/trade/agricultural-trade](http://www.oecd.org/trade/agricultural-trade)

KT Akramov (2017) Economic Development, External Shocks, and Food Security in West Africa. www. citeseerx.ist.psu.edu/viewdoc

IFAD (2017) Livelihood Improvement Family Enterprises Project in the Niger Delta of Nigeria (LIFE-ND) www. <https://webapps.ifad.org/members/eb/122/docs/EB-2017-122-R-8-Project-Design-Report.pdf>

Mortimore. M. (2013) [The place of crop agriculture for resilience building in the drylands of](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=6&ved=0ahUKEwjJwLLVw_vbAhWHAsAKHUayCVsQFgg_MAU&url=http%3A%2F%2Fwww.fao.org%2Ffileadmin%2Fuser_upload%2Fdrought%2Fdocs%2F1_FINAL%2520REPORT_The%2520place%2520of%2520crop%2520agriculture%2520in%2520the%2520drylands%2520of%2520the%2520HoA.pdf&usg=AOvVaw1o9ac--xLEujZqrejAps0p)Africa. [www.fao.org](http://www.fao.org)

CBN (2017) Annual Report

Otaiku, A.A (2018) Ecological Grazing Management, Food Security and Surveillance in Nigeria: Innovation Ecosystem Approach. A PhD Thesis. <https://www.researchgate.net>

Olukunle, O.T. (2013) [Challenges and Prospects of Agriculture in Nigeria](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwi9y6bbzvvbAhVJJ8AKHXRyBpMQFggoMAA&url=http%3A%2F%2Fpakacademicsearch.com%2Fpdf-files%2Fech%2F520%2F37-45%2520Vol%25204%2C%2520No%252016%2520(2013).pdf&usg=AOvVaw3txApiMxJ1iC-4X_pym2h9). www. pakacademicsearch.com

Mancosu, N. (2015) [Water Scarcity and Future Challenges for Food Production](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=5&ved=0ahUKEwi9y6bbzvvbAhVJJ8AKHXRyBpMQFghcMAQ&url=http%3A%2F%2Fwww.mdpi.com%2F2073-4441%2F7%2F3%2F975%2Fpdf&usg=AOvVaw0cvapvdluc-VXXbtlRfU2w). [www.mdpi.com](http://www.mdpi.com)

Magaji, S & Eke, C.I (2015) An economic assessment of the impact of information and communication technology (ICT) on performance indicators of water resource management in West Africa: A suggested strategy for avoiding the eminent international water wars. International Journal of Water Resources and Environmental Engineering. Vol 7(5): 66-74

Ozowa V.N (2010) Information needs of small scale farmers in Africa: [www.worldbank.org/html/cgiar/newsletter/june97/9nigeria.html](http://www.worldbank.org/html/cgiar/newsletter/june97/9nigeria.html)

Magaji, S & Eke, C.I (2013) Measuring the technical efficiencies of wired and wireless technologies in Nigeria’s cyber cafes. CBN Journal of Applied Statistics. Vol. 4(1): 15-34

Nigeria’s Agriculture and Food Security Challenges  
[www.foa.org/tc/qork05/Nigeria ppt.pdf](http://www.foa.org/tc/qork05/Nigeria ppt.pdf)

Samuel. A.I (2010) Using ICTs to Bridge the Agricultural Extension Gap and in providing Market Access for Rural Farmers in Nigeria: A practical Approach.  
[www.goole.com](http://www.goole.com). “ICT in agriculture in Nigeria”

### Hutching and Sawyer (2000) Computers, Communications, Information: Users Introduction, New York, Irwin McGraw Hill, P. 4.27.

### Huang, J; Hu, R; Rozelle, S; Quao, F; Pray, C.E, (2002) Transgenic varieties and productivity of small holder cotton farmers in China. Appetite 46: 144 – 151

### Stein, A.J; Sanchdev, H.P.S; Qaim, M, (2008) Genetic engineering for the poor: Golden rice and public health in India. World development 36(1): 144-158.



**Impact of Informal Financial Sector (IFS) on Small And Medium Scale Enterprises (SMEs) in Nigeria**

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**Abstract**

*Informal Financial Sector, Informal economy or grey economy is that part of economy that is neither taxed, regulated nor monitored by any government agencies. Unlike the formal sector, activities of the informal sector are not calculated in a country’s Gross National Products (GNP) or Gross Domestic Products (GDP). The Informal sector groups, Informal micro-enterprise and Small-scale industries have raised issues in the area of definitions have not yet been fully addressed. Although the sector has become the engine of socio-economic growth and development in Nigeria; Informal Financial Sector is the bed rock for most SMEs in Nigeria. In a related development, Small and Medium-scale Enterprises (SMEs) occupy a central place in economic growth of a nation. SMEs have a fundamental role to play in the development of an economy and this cannot be overemphasized. SMEs serve as training arena for entrepreneurs and could become channels for mobilizing local savings, ensuring more equitable distribution of income and reducing the migration of manpower from the rural to urban areas. On this note, government has identified the need for the development of Informal Financial Sector and SMEs. One of such sectorial is the introduction and pursuit of policies such as concessionary financing to encourage and strengthens the growth of SMEs in Nigeria. However, a well functioning informal economy will be a critical prerequisite to sustainable growth. This is because the link between informality and SMEs in Nigeria is not fully understood. This study seeks to investigate the nexus between Informal Financial Sector and SMEs in North central-Nigeria using a binomial probit regression approach with data from structured questionnaires having Informal loan and Informal savings as variables. The findings revealed that the odd ratio of INFLOAN against the IFS chance of SMEs development is 1.09. The study therefore concluded that there exists a significant relationship between IFS and SMEs in north central-Nigeria. The study recommended that there is need for government intervention and supports for Informal Financial Sector in the areas of saving mobilization and investment in Nigeria.*

**Keywords:** IFS, Probit model, SMEs, Informal Loan, Informal savings

**JEL** **Codes**:E26

**1. Introduction**

The Nigerian government has over the years embarked on series of policy and institutional reforms aimed at enhancing the low of finance from the banking sector to Small and Medium Enterprises (SMEs) as well as those involved in the petty business (Micro) activities and to entrepreneurial ventures at the informal level in particular. However, the important objective of boosting the performance of the entrepreneurial activities of SMEs has not materialized. Small and Medium enterprises have been noted to play a significant role in employment and economic growth of many countries .Indeed, in many developing countries as well as developed countries, small and medium enterprises are the focal point of growth and self-employment. In low-income countries, it is estimated that small and medium enterprises account for more than 60 per cent of the GDP and provide over 70 per cent of employment opportunities (Aliyu, 2012). Access to finance is prerequisite for survival and performance of any enterprise and has become an increasingly important development metric, as one of the factors which can drive widespread economic development (Ifedullova, 2013).

Financial market in developing countries is composed of formal, semiformal and informal financial institution with formal institutions being unable to meet the needs of firms and individuals in informal settlements (Osuntogun & Adeyemo, 2015). Formal financial services refers to financial services provided by registered financial institutions that are licensed to offer financial services by the country’s bank regulator largely urban based in terms of distribution of branches and the concentration of deposit and lending activities (Irobi,2008). Examples of institutions offering formal financial services are the commercial banks, insurance companies and development banks. On the other hand, the informal financial sector also known as un-organized sector consists of individuals such as money lenders, relatives, friends, neighbours, landlords, traders and group of individuals that operates mainly in the rural setting, (Okezie, 2013). .

The informal financial sector is an age-long one, an ancient one that dates back at least to the 16th century; the activities predate those of the formal financial system but are not subjected to Government regulation (Iganiga & Asemota, 2008). Financing small businesses is a function that is carried out using specialized techniques that address the problems of information, transaction costs and risks, which prevent banks from serving these market segments. Small and medium scale firms play important roles in the process of industrialization and economic growth. Apart from increasing per capita income and output, SMEs create employment opportunities, enhance regional economic balance through industrial dispersal and generally promote effective resources utilization considered critical to engineering economic growth (Ariyo, 2010).

SMEs make a significant contribution in the global economy. It is estimated that SMEs make up more than 90% of all new business establishment worldwide (World Bank, 2014) Despite such significant contribution made by the SME‟s, they continually face funding constraints in the formal finance market. Unfavorable macroeconomic environment has been identified as one of the setbacks encouraging financial institutions to be risk-averse in funding small and medium scale businesses (Ray, 2008).The development of SMEs is believed to be a desirable end as the key drivers of employment and economic growth. However, the growth of SMEs has been hampered due to great difficulties encountered when raising capital because of the pre-occupation of the finance institutions with collateral based lending (Yelwa et al., 2012).

However, since there is adequate formal banking system, but most people depend on informal financial institutions existing in the area for their financial transactions such as savings and loans. This study is therefore aimed at determining the contribution of informal financial institutions on the growth of small scale enterprises in North central states of Nigeria.

**2. Literature Review**

*Concept of Informal Financial Institutions*

In Africa, the vast majority of financial transactions occur outside the boundaries of the regulated banking sector (Aryeetey and Udry, 2007). It is estimated that 55 percent of the money supply in Nigeria is for instance outside the formal banking sector (Okezie, 2009). Informal lenders provide more credits and attract a larger volume of savings than the formal sector in sub-Saharan Africa (Nissanke and Aryeetey, 2013).

It is important to understand how the Informal Financial Sector works for effective policy making. Three types of informal units have been identified in Africa; including savings mobilization units with little or no lending; lending units that do not engage in any savings; and savings mobilization and lending units (Obadan, 2014).

The Informal Financial Sector is an unregulated market and hence highly flexible with respect to structuring credit arrangements. It is therefore not guided by stringent rules and regulations such as the formal sector. The informal sector is characterized by a strong working relationship between borrowers and lenders, and is more responsive to market conditions. It is also common to see individuals and businesses participating in both the formal and informal sectors. This is particularly true among enterprises, a number of which are controlled and managed by families, friends and relatives with full access to formal sector capital markets.

Berko (2010) noted that the earliest but most primitive means of Informal Financing Institutions were the slavery, forced human labour, child marriage and the practice of “*Iwaga”* in Yoruba area in which a borrower uses his own wife or daughter as collateral for the loan. According to him, these inhumanizing of human race practices had been phased out in Nigeria because of Christianity and civilization.

Umebali (2012) sees informal credit institutions to include all classes of credit, savings associations and markets operating outside the formal financial system guidelines. They gained their popularity as a result of non cooperative attitudes of some conventional banks and other non-banking financial institutions in giving loans to the less privileged or poor. These institutions are often made up of heterogeneous savers and lenders.

According to Osuntogun and Adeyemo (2015), the informal financial market is an indigenous system of saving in varying forms which can be broadly summarized as a situation in which a group of people come together, contribute fixed amount at fixed intervals and assign the total amount contributed to an individual member on rotational basis or offer credit to members and share their accumulated savings at

Furthermore, Robinson (2001) defined microfinance as the supply of loans, savings and other basic financial services to the poor. IFI evolved as an economic development approach intended to benefit the low-income part of a given society, both men and women (Irobi, 2008). According to World Bank (2007), the term refers to provision of financial services (including saving and credit) to the poor.

*Concept of Poverty in Nigeria*

Central to the quest for policies and programmes that will reduce poverty is the issue of the conceptualization of poverty. Conceptually, three dominant views are identified as the meaning of poverty in the literature. The first view sees poverty as a severe deprivation of some basic human needs at the individual or household level, (Obadan, 2009). Put differently, poverty is a material deprivation and this can be assessed in monetary terms. (Aliyu, 2012).

The second view defines poverty as the failure to achieve basic capabilitiessuch as being adequately nourished, living a healthy life, possession of skills to participate in economic and social life, permission to take part in community activities to mention a few. This conceptualization forms the basis for the belief that ‘poverty is multi–dimensional’ (Senn, 2009).

The third conceptualization of poverty came into limelight in the 1990s and has a fundamentally different approach to the understanding of poverty: subjective poverty assessments. The core of this view of poverty is that poverty must be defined by the poor themselves or by the communities that poor people live in. (Streeten, 2008).

*Concept of Small, Micro and Medium scale Enterprises*

As outlined by allbusiness.com (2010), the traditional definition in Germany sees Small and Medium Scale Enterprises as enterprise that is not more than two hundred and fifty employees while in Belgium, sees is as enterprise with not more than one hundred (100) personnels. In the latest development by the European Union, the concept ‘micro’ has been categorized as enterprises with less than ten (10) employees, ‘small’ as those with less than fifty (50) employees and ‘medium; as those with less than two hundred and fifty (250) employees. In the USA, ‘small’ is classified as enterprise or business with less than one hundred (100) employees while medium scale business identifies as business with fewer than five hundred (500) employees.

European Union (2013) sees medium-sized business as an enterprise that the number of employees is not more than two hundred and fifty persons and whose annual turnover is not more than EUR 50 million or whose annual balance-sheet total will not exceed EUR 43 million. A small enterprise is described as an enterprise which employs fewer than 50 persons and whose annual turnover or balance sheet total will not exceed EUR 10 million. While a micro enterprise is viewed as an enterprise which employs below 10 persons and whose annual returns and/or annual balance sheet total is not more than EUR 2 million (Ifedulova, 2013).

Micro and Small Enterprises play significant role from the overall industrial economy in India. It is estimated that with regards to value, the sector accounts for approximately 39 percent of the manufacturing output and about 33 percent with the total exports of the nation. In South Africa, the word Small, Medium and Micro Enterprises (SMMEs) plays a significant role in their economy while in Nigeria the word Small and Medium Scale Enterprises (SMEs) is used. Base on these analyses, it is concluded that Small and Medium Scale Enterprises are enterprises that can employ at most five hundred (500) employees at any given point in time and it has been proved to be the backbone of every economic system. However, the brain behind every prosperous Small and Medium Scale Enterprise is entrepreneurship which plays crucial roles in managing the small and medium scale enterprises. Entrepreneurial skill is a pillar to which SMEs survives (Yelwa et al. 2012).

*Empirical Review*

Tsai*.* (2014) investigated the relationship between Informal Financial Institutions and Investment in China from 1970 to 2012. The results found that access to finance is an important factor in savings and hence, investment. The findings revealed that those IFIs were responsible for up to three-quarters of private sector financing during the first two decades of reforms

Yelwa, et al. (2012), carried out a research on the relationship between Informal Financial Sector and Financing of the Small and Medium scale Enterprises in Nigeria using Niger state as a case study. He concluded that Informal Financial market operators in Minna, Suleja, Bida and Kontagora have contributed largely to investment, job creation, income generation, easy accessibility to credit facilities and supports the production and distribution of goods and services to the people of the towns.

Osuagwu (2012), found that the following four factors determine investment: The expected rate, the supply of funds, Absorptive capacity and the government policies. Based on the study, he concludes that the inadequacy of investment in the economy supply was caused by government policies, limited supply of investment fund i.e. micro- credit and slow rate of expansion of the absorptive capacity due to lack of innovation in the technological development.

Fowowe and Abidoye (2011) examine the effect of financial development as measured by private credit on the growth of poverty and inequality in Sub-Saharan African countries. Their findings show that private credit has no significant influence on poverty in these countries. However, empirical results show that macroeconomic variables such as low inflation and trade openness engender reduction of poverty.

Rama (2013), in his study of the theoretical and empirical determinants of investment in developing countries identifies macroeconomic and institutional factors, such as financial repression, foreign exchange shortage, lack of infrastructure, economic instability, aggregate demand, public investment, relative factor price and credit availability as important variables that explain private investment. Here, credit availability among other factors was stressed.

*Theoretical Framework*

The theoretical framework for this study is rooted on the work of Mc Kinnon (1973) and Shaw (1973) in Financial Repression Theory, who propounded that Informal Financial Institution came into existence because of excessive regulation of the formal sector with the use of policies of direct control such as interest rate ceilings and prescribed credit allocation to government and its parastatals.

This led to distortions in the economy resulting in crowding out of the financial needs of the informal sector by the formal financial institutions. In addition, the effective cost of funds to small and medium scale enterprises became excessively high. However, the imposition of interest ceiling often below market interest rates usually induces excess demand for loanable funds, thus leading to credit rationing by banks and other financial institutions and the existence of parallel financial markets with higher market clearing interest rates.

**3.** **Methodology**

*Study Area*

The study was conducted in the North Central, Nigeria. These areas consist of the selected three states situated geographically in the middle belt region of the country, spanning from the west, around the confluence of the River Niger and the River Benue. The region is made up of the following states: Benue, Kogi, Kwara, Nasarawa, Niger and Federal Capital Territory (Abuja).The region itself is rich in natural land features, and boasts some of Nigeria's most exciting scenery. The region is also home to many historical and colonial relics. However, three of these states were selected based on random sampling for the study

The selection of these states was also based on the growing SMEs in these states because of their growing population. For instance, FCT used to be known as businesses headquarters, but recently, because of the growing population in the region with about 6 million people, the growth of SMEs have been on a high side. The same apply to Kogi and Niger state because of their proximity to the FCT.

*Nature and sources of Data*

This study relied on primary data. The primary data consisting of 850 questionnaires distributed which was determined by Krejcie and Morgan (1970); while 700 returned and valid was used for the analysis.

*Analytical Framework*

*Probit Model*

Probit models were introduced by Chester Bliss in 1934. It is a fast method for computing maximum likelihood estimates which was proposed by Ronald Fisher as an appendix to Bliss' work in 1935.

Suppose a response variable *Y* is *binary*, that is it can have only two possible outcomes which we will denote as 1 and 0. For example, *Y* may represent presence/absence of a certain condition, success/failure of some device, answer yes/no on a survey, etc. We also have a vector of regressors *X*, which are assumed to influence the outcome *Y*. Specifically, we assume that the model takes the form

{\displaystyle \Pr(Y=1\mid X)=\Phi (X^{T}\beta ),}--------------3.1

Where Pr denotes probability, and Φ is the Cumulative Distribution Function (CDF) of the standard normal distribution. The parameters *β* are typically estimated by maximum likelihood.

It is possible to motivate the probit model as a latent variable model. Suppose there exists an auxiliary random variable

----------------------3.2{\displaystyle Y^{\ast }=X^{T}\beta +\varepsilon ,}

Where *ε* ~ *N*(0, 1). Then *Y* can be viewed as an indicator for whether this latent variable is positive:

{\displaystyle Y=\left.{\begin{cases}1&Y^{\*}>0\\0&{\text{otherwise}}\end{cases}}\right\}={\begin{cases}1&-\varepsilon <X^{T}\beta ,\\0&{\text{otherwise}}.\end{cases}}}}=-3.

The use of the standard normal distribution causes no loss of generality compared with using an arbitrary mean and standard deviation because adding a fixed amount to the mean can be compensated by subtracting the same amount from the intercept, and multiplying the standard deviation by a fixed amount can be compensated by multiplying the weights by the same amount.

To see that the two models are equivalent, note that{\displaystyle {\begin{aligned}&\Pr(Y=1\mid X)\\={}&\Pr(Y^{\ast }>0)\\={}&\Pr(X^{T}\beta +\varepsilon >0)\\={}&\Pr(\varepsilon >-X^{T}\beta )\\={}&\Pr(\varepsilon <X^{T}\beta )&{\text{by symmetry of the normal distribution}}\\={}&\Phi (X^{T}\beta )\end{aligned}}}

*Model specification*

The models will be specified based on the hypothesis as follows:

Ho**:** There is no significant contribution of IFS on SMEs growth in North central states-Nigeria which is specified as:

) = P = β0 +β1 INFLOAN + β2 INFSAV + µ------------------------------3.4

**Where:**

L= P=1, If IFS promotes SMEs growth in Nigeria; (1-P), if otherwise.

INFLOAN = Informal Loan

INFSAV = Informal Savings

Table 3.1: Measurement of Variables

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Measurement | Expected Sign on impact | A priori |
| Informal Financial Sector and SMEs growth | 1, if IFS Promotes SMEs growth, 0, if otherwise. | + | λ1 > 0,  λ 1 < 0 |
| Independent Variables  Owner’s Characteristics Variables |  |  |  |
| INFLOAN | 1, if Informal loan experienced increase in the SMEs growth; 0, if otherwise. | + / Based on Ayodele, (2015) and Hossain, (2015) | λ 9 > 0 |
| INFSAV | 1, if Informal savings promotes SMEs growth; 0, if otherwise. | + / based on the study carried out by Balogun, (2004), Adeyemi, (2014) | λ 7 > 0 |

*Source: Author’s compilation, 2018*

*Sample Size Determination*

The cross sectional data for this study was obtained using questionnaires. Based on the Krejcie and Morgan, (1970) table with a deterministic model as:

Where:

S = Sample size

X2 = Value of Chi-square

N = Population size

P = Population proportion

d = Degree of accuracy

Based on this proposition by Krejcie and Morgan, (1970), a sample size of 850 questionnaires was recommended using 95% confidence interval. In addition, the minimum sample size would be determined on the basis of 30 cases per variable/item for an accurate representation of the first canonical root (Stevens, 2001). The Bowley’s model of deriving objective, valid and reliable sample was used which reduced the chances of error.

*Methods of Data Analysis*

The Maximum Likelihood (ML) method is used to obtain estimates for the specified binomial probit probability model. The justification for using ML method is due to the fact that neither the ordinary least squares (OLS) nor the weighted least square (WLS) is helpful or adequate for estimating the model. Moreover, that the probit model is a nonlinear model. The parameter estimates of the specified probit model are not directly interpretable with respect to magnitudes of effect but only interpretable with respect to the direction of effect on probability (Patrick *et al*., 1996).

*Distribution of Questionnaires and Response rate*

A total of eight hundred and fifty (850) copies of the questionnaire were administered across the two States and the FCT in the North Central covered by the study. The basis of distribution of the copies of the questionnaire was based on the population from each region which is in line with Krejcie and Morgan (1970). The details of the questionnaire distribution and response rate are shown in Table 3.2 below:

Table 3.2 Questionnaire Distribution / Response Rate of Micro & Small Enterprise Operator

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | I | II | III | IV | V |
| States in North Central Zone | No. of Registered SMEs | Percentage of the population (%) | No. of Questionnaire distributed | No. of questionnaires returned | Rate of Response (%) |
| Abuja FCT | 6000 | 48.8 | 415 | 342 | 49.0 |
| Kogi | 3800 | 30.9 | 263 | 216 | 30.9 |
| Niger | 2500 | 20.3 | 172 | 142 | 20.1 |
|  | 12300 | 100 | 850 | 700 | 100 |

*Source: Researcher’s Analysis of Field Survey, 2018*

As mentioned earlier, Table 3.2 shows the questionnaire distribution and response rate across the three regions in the North Central geopolitical zone. A total of 415 copies of the questionnaires, representing 48.8% of the total sample size were administered in Abuja, FCT. In Kogi State, a total of 263 copies of the questionnaire were distributed, representing 30.9% of the sample size. In Niger, 172 questionnaires representing 20.3% were distributed of the total sample size.

According to Saunders, Thornhill, & Lewis (2007), there are two methods of calculating a response rate: one is total number of responses divided by total number in the sample minus ineligible; the other active response rate, is total number of responses divided by the total number in the sample minus ineligible plus unreachable. Method one was used in this study. Out of the 415 copies of the questionnaire distributed in FCT area, 342 copies were adequately completed and returned. This represents 49.0% response rate. In Kogi State, 216 copies of the questionnaire were returned and that represents 30.9% response rate. In Niger state, 142 copies of the questionnaire were adequately completed and returned; these represent 20.1% response rate respectively.

In all, a total of 700 copies of the questionnaire were returned from the two States and the FCT out of 850 copies administered. This represents a total response rate of 82.4%. The high return rate achieved from the field survey can be attributed to the support received from the credit/field officers in the areas.

**4. Data Analysis**

*Characteristics of Respondents*

Table 4.1 shows that 33 respondents representing 4.71% got their loans from commercial banks, 187 respondents representing 26.71% made use of ROSCA,

Table 4.1 Credit from Formal/Informal Financial Institutions to SMEs

|  |  |  |
| --- | --- | --- |
| Response | No. of Respondents | Percentage (%) |
| Commercial banks | 33 | 4.71 |
| ROSCA (Ajo, Etoto) | 187 | 26.71 |
| Cooperatives | 398 | 56.86 |
| Thrift | 46 | 6.57 |
| Money Lenders | 36 | 5.1 |
| Total | 700 | 100 |

*Source: Field Survey, 2018*

*Fig 4.1: Credit from Formal/Informal Financial Institutions to SMEs*

*Source: Field Survey, 2018*

398 respondents representing 56.86% got their credits from cooperatives, 46 respondents representing 6.57% made use of thrift collectors while 36 respondents representing 5.1% used money lenders. This shows that majority of respondents got their credit through Informal Financial Institutions.

Table: 4.2: Savings Mobilization

|  |  |  |
| --- | --- | --- |
| Response | No. of Respondents | Percentage (%) |
| Commercial banks | 73 | 10.43 |
| ROSCA (Ajo, Etoto) | 188 | 26.86 |
| Cooperatives | 306 | 43.71 |
| Thrift | 133 | 19.0 |
| Total | 700 | 100 |

*Source: Field Survey, 2018*

*Fig 4.2: Credit from Formal/Informal Financial Institutions to SMEs*

*Source: Field Survey, 2018*

Table 4.2 revealed that 73 respondents representing 10.43% save their monies through the commercial banks, 188 respondents representing (26.86%) save through ROSCA, 306 respondents representing 43.71 save through cooperatives while 133 respondents representing (19%) save through thrift collectors. This shows that majority of the respondents save their monies through IFI.

*Test of Hypothesis*

*Step One: Restatement of Hypothesis in Null Form*

Ho**:** Informal Financial Sector (IFS) has no significant relationship with SMEs growth in north central states of Nigeria.

The binomial probit model is specified below:

) = P = β0 +β1 INFLOAN + β2 INFSAV + µ--------------------------4.1

*Step Two: Presentation of Regression Results*

The multiple regressions is to be estimated, where the coefficients β1, and β2, to be estimated, are used to measure the contribution of independent variables to dependent variable.

The binomial Probit model is stated below:

) = L = β0 +β1 INFLOAN + β2 INFSAV + µ

A binomial linear Probit regression method of estimation was applied to our earlier outlined methods. The overall results are expressed below.

Dependent Variable: P

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
| C | 1.289324 | 0.789727 | 1.632620 | 0.1025 |
| INFLOAN | 0.087793 | 0.212093 | 0.413937 | 0.0009 |
| INFSAV | 0.662579 | 1.907640 | 0.347329 | 0.0003 |
| McFadden R-squared | 0.314720 | Mean dependent var | | 0.759184 |
| S.D. dependent var | 0.428454 | S.E. of regression | | 0.431389 |
| Akaike info criterion | 1.158530 | Sum squared resid | | 43.91884 |
| Schwarz criterion | 1.287147 | Log likelihood | | -132.9199 |
| Hannan-Quinn criter. | 1.210324 | Deviance | | 265.8397 |
| Restr. Deviance | 270.4893 | Restr. log likelihood | | -135.2447 |
| LR statistic | 10.64914 | Avg. log likelihood | | -0.542530 |
| Prob(LR statistic) | 0.000085 |  |  |  |
| Obs with Dep=0 | 209 | Total obs | | 675 |
| Obs with Dep=1 | 466 |  |  |  |

*Source: Author’s Computation, E-views 7 (2018)*

Table 4.3: Regression results-dependent variable, IFS and SMEs

|  |  |  |  |
| --- | --- | --- | --- |
| IFIs in alleviating poverty | Odd Ratio | S.E | P-Value |
| Lending Rate | 1.09\* | 0.2121 | 0.0089 |
| Credit | 1.94\* \* | 0.1802 | 0.0023 |

*\*\*\* 1% significance level, \*\*5% significance level, \* 10% significance level*

A binomial linear probit regression method of estimation was applied to our earlier outlined methods. The overall results are expressed below:

314720

*Step Three: Interpretation of Result*

The regression above shows that the two explanatory variables are statistically significant even at 5 and 10 percent respectively. These are the Informal loan to SMEs and Informal Savings of the SMEs. The result shows that the odds ratio of INFLOAN against the IFS chance of promoting SMEs growth is 1.09. This means that there is a great link between Informal Financial Sector and SMEs development in north central states-Nigeria. The working hypothesis is that INFLOAN has a significant negative effect on IFS in SMEs development.

Moreover, the result also shows that the odds ratio of INFSAV’ against the IFS chance of promoting SMEs growth is 1.94. This means that there is significant relationship between INFSAV and SMEs development in north central-Nigeria. This shows that Informal Financial Savings have a significant impact on SMEs development. This is significant at 5 percent.

The finding agrees with Tsai (2014) who noted that informal Financial Institutions represents a major source of finance for traders and farmers in China. Tsai (2002) also found that those IFIs were responsible for up to three-quarters of private sector financing during the first two decades of reforms. IFAD (2001) study in China found that Informal Financial Institutions provided considerably more access to credit than Formal Financial Institutions.

The McFadden R-squared value of implies that about 32 percent of the change in the dependent variable was explained by the explanatory variables of the model. There is tendency to assume that the model has poor fit, but according to Byrne et al. (2006), the R2 associated with linear model dominated by dummy variables commonly comes out poor in this manner.

**5. Conclusion and Recommendations**

The findings revealed that informal financial sector is an integral part of rural economic life and an alternative source of credit for rural people. Their existence in the north central states-Nigeria has contributed significantly towards SMEs growth and development through the disbursement of micro loans to their members for productive investment. Given the failure of most Nigerian government rural financial intervention programmes, the researchers therefore recommended that there is the need for the government to support Informal Financial Institutions in promoting SMEs programmes, since about 75 percent of the Small and Medium scale Enterprises (SMEs) could assess credit for investment through them. This will go a long way in promoting inclusive growth in the country.

**References**

*Aliyu A. (*2012), Implementation progress report, background, structure achievement and problems, A paper presented at a one day special presidential retreat for permanent secretaries.

Allbusiness.com, (2010). Nigeria Economy. [Online] Available

Ariyo, S.O., (2010). Determining the poor against the background of local situation and circumstances. A Paper Presented at Organizational Workshop of National Poverty Eradication Programme at Benue Hotel Makurdi, Nigeria

Aryeetey, E., & Udry, C. (2007), “The Characteristics of Informal Financial Markets in Sub-Saharan Africa”, Journal of African Economies, Supplement Vol. 6 (1), 1997: 161–203

Berry, J. S., Manchflower D.G and Meyer S.O. (2012), “Self employment in OECD countries, Labour Economics” VOL.7, 471-505.

Berkor, M. (2010), Microfinance: An Emerging Market within the Emerging Markets. Washington DC, Inter-American Development Bank.

Byrne, A. Duflo, E. Glennerster, R. and Kinnan, C. (2006) “The Miracle of Microfinance? Evidence from a Randomised Evaluation” Department of Economics, Massachusetts Institute of Technology (MIT) Working Paper, May.

CBN, (2005) Annual Report and Statement of Account: Central Bank of Nigeria, Abuja.

Dunn, A, & Archucle, R. (2011) Financial System and Development; what role for formal and informal sector? Paris, OECD. European Union, (2013). Human Development Reports, CIA World Factbook; World Bank, pages 1-2; December 2003.

FAO, (2009). The survey handbook, Thousand Oaks, CA: Sage Publications

Fowowe, B.and Abidoye, O. (2011); “policy framework and linkages to sources of finance, market opportunities and technical support”; Abuja journal of business

Geda, J. A., Newbold, J. P and Whitford, D. T. (2014). Predicting Bankruptcy: If Cash Flow's Not the Bottom Line, What Is It?. Financial Analysts Journal, 41(5), 47- 56.

Ifedulova, I. (2013), “Analysis of credit on SMEs development” European Union Publications.

IFAD (2001), Poverty Reduction through Enhance Access to Financial Service: Case study of Botswana. Kenya and Namibia. Occasional paper No. 010/2001.

Inegbenebor, J. (2006), “ Is there a State of the Art in Microfinance?” In Joe Remeny and BenjaminQuinones Jr(eds), Microfinance and Poverty Alleviation- Case Studies from Asia and the Pacific. London: Printer.

Irobi, N.C. (2008), Microfinance and Poverty Alleviation: A case study of Obazu Progressive Women Association Mbieri, Imo State- Nigeria. Uppsala: Department of Economics

Khandker, S. (2005),” Micro-finance and Poverty: Evidence Using Panel Data from Bangladesh”. World Bank Economic Review

Krejcie, J. and Morgan, P. (1970), “Developing Sample Size for Research Activities”, Education and Psychological Measurement, H30, pp. 607-610

Mckinnon, R.I. (1973): Money and Capital in Economic Development”. Washington D.C.; Institution.

McElvey, O., and Zavoina, J., (1969). The Financial Performance of Non-farm Microenterprises in Ghana. World Development, 36(12), 2733–2762.

Mwakapui, S. (2012). The Impact of Microcredit Programs on Self-Employment Profits: Do Noncredit Program Aspects Matter? The Review of Economics and Statistics, 84(1), 93-115.

Nissanke, M.K. and E. Aryeetey, (2013), Financial Integration and Development. Liberalization and Reform in Sub-Saharan Africa, Routledge, London

Obadan, M.I. (2009a) “Analytical Framework for poverty Reduction: Issue of Economic Growth versus Other Strategies”, Proceedings of the 1996 Annual Conference of the Nigeria Economic Society (Ibadan: NES).

Obadan, M. I. (2014) “Poverty in Nigeria: Characteristics, Alleviation Strategies and Programmes”, NCEMA Analysis Series, Vol. 2, No. 2.

Okezie, A. (2009) “Isusu Groups and their Performance in Mobilizing Credits for Micro Businesses” Nigeria Journal of Economics, 49 (2), 112-148

Olaitan, J. (2001). The Nigerian Maladapted Financial Systems: Reforming Tasks and Development Dilema, CIBN Press Ltd, Lagos, 229-342.

Osuntogun O. I and Adeyemo, P. O. (2015). Microcredit and microenterprise development: An analysis of some rural based enterprises in Nigeria. Nigeria Journal of Economics and Social Studies, 49(1), 95 – 113.

Osuagwu, C. (2012) Rotating Saving and Credit Associations in Jamaica: Some Empirical Findings on Partner. Social and Economic Studies 45(2&3): 195– 224.

Patrick, A; Leonard S; Patricia M.Y and Ernest T; (1996), “Microfinance, rural livelihoods, and women’s empowerment in Uganda” African Studies Centre Research Report 85 / 1996

Rama, M. (2013) Money, Interest and Banking in Economic Development. John Hopkins University Press: Baltimore.

Robinson, M. (2001), The Microfinance Revolution: Sustainable Finance for the Poor. World Bank, Washington

Senn, A.K. (2009). The Standard of Living. Cambridge, Cambridge University Press. The World Bank, (1992). Poverty Reduction Handbook. Washington D.C., U.S.A.

Shaw, E.S. (1973): “Financial Deepening in Economic Development” New York: Oxford University Press.

Stevens, H. (2001). "New Business Ventures and the Entrepreneur", Homewood, Irwin.

Streeten, P. (2008). Does rural location matter? The significance of a rural setting for small businesses. Journal of Developmental Entrepreneurship, 10(1), 49–63.

Thornhill, D. and Lewis, R (2007). The Characteristics and Strategies of High Growth SMEs. International Journal of Entrepreneurial Behaviour and Research, 1(3), 44-79

Tonge, A., Greer, L., Lawton, A. (2013). The Enron story: You can fool some of the people some of the time ---- Business Ethics: An European Review, 12/1, 4-22.

Tsai, R (2014). The inflation tax in a real business cycle model. American Economic Review, 79,733- 48

Umebali, F. N. (2012). Survey of Small and Medium Scale Industries and Their Potentials in Nigeria. Small and Medium Industries Equity Investment Scheme (SMIEIS) Seminar. CBN Training Centre, Lagos.

World Bank (2010) African Development Indicators 2005 New York: Oxford University Press. World Bank (2005) World Development Report 2005 New York: Oxford University Press.

World Bank (2007) Global Economic Monitoring Report 2007 World Bank (2008) World Development Indicators 2008 New York: Oxford University Press.

Yaron, I; Woller, G. and Parsons, R. (1998). Assessing the community economic impact of microfinance Institutions. Journal of Developmental Entrepreneurship, 7, 133-150.

Yelwa, M., Hussainat S. and Mohammed P. (2012), Informal Financial Sector and Financing of Small and Medium scale Enterprises (SMEs) in Nigeria.

Zeller, S. and Sharma, H. (1988) “The Micro and Small Enterprises Sector in Ethiopia: An over view” in W. Gebeyehu and D. Assefa. (eds), The Role of Micro and Small Enterprises in the Economic Development of Ethiopia. Addis Ababa: FEMSEDA



Effect of Macroeconomic Policies on Poverty Alleviation in Nigeria: 1990-2017

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**Abstract**

*This study was carried out to empirically examine the effect of macroeconomic policies on poverty level in Nigeria from 1990-2017. The persistent and high level of poverty in Nigeria despite the adoption and implementation of various macroeconomic policies is the motivation behind this study. Three variables are used in this study which are Poverty level (POV), Unemployment Rate (UMP), Government expenditure (GEX), interest rate (INR) and money supply (MS). The variables were subjected to unit root test and they were all stationary at first difference I(1). Using the Johansen test, the variables were found to be cointegrated at 1% level of significance. The method of data analysis used was the ordinary least squares technique. The ordinary least squares result obtained showed that money supply and government expenditure had a negative impact on poverty level in Nigeria, with the relationship being statistically significant. The result is consistent with so many researches done in this regard. Government capital expenditure and money supply have a negative impact on unemployment rate in Nigeria and the impact is significant. From the conclusion, the recommendations made include; Since government capital expenditure has a negative impact on poverty level, emphasis should be laid on increasing government capital expenditure especially those meant for development programs and projects. This will reduce poverty level in the country.*

**Keywords:** Poverty, Macroeconomics, Unemployment, Expenditure, Cointegration

**JEL** **Codes**:O15

**1. Introduction**

History shows that high rates of economic growth sustained over a period of time are necessary for poverty reduction, while the distribution of the benefits of growth determines the impact on poverty. The macroeconomic policy framework often sets the parameters for social policies by defining the policy and fiscal space for government action. For two and a half decades starting from the end of the Second World War, Governments of the industrialized countries, through active reflationary macroeconomic management, achieved rapid reconstruction and prosperity underpinned by full employment and low inflation. Governments in developing countries also played a very active role in promoting economic growth and structural change after independence from colonial powers was gained. Developing countries as a group experienced impressive economic growth and structural change within their economies. Industry was the fastest-growing sector, resulting in a rapid rise in industry’s share of gross domestic product (GDP) in “virtually all the developing economies” (World Bank, 2004). However, there were variations among developing countries; growth and structural change in most low-income countries in Africa and Asia, where the majority of the world’s poor live, were slow.

Nigeria is the most populous country in Africa with a population of 140 million based on 2006 census and having a nominal GDP of $207 billion in 2006 (World Economic Outlook, 2006). Its Per capita income is $1401 in 2014 and as a result of this it was classified as the largest economy in Africa (Talkudar, 2012). Despite having the largest economy in Africa and 26th in the world unemployment 1rate have been rising in Nigeria (Oduro and Aryee, 2015). The Nigerian economy has remained largely underdeveloped despite the huge human and natural resources. Poverty level is high, unemployment and inflation rates are also high with many socio-economic challenges. The economy has continued to witness economic recovery which is immediately followed by economic recession and depression (Balami, 2006)

According to Gbosi (2004) the situation in Nigeria is disturbing; the various macroeconomic policies by government have been unable to achieve sustained price stability, reduction in unemployment and sustained growth. The fluctuations in the economy have confirmed the need to manage the economy effectively. The essence of macroeconomic management underlines the rationale of the government as a vital economic agent. However, it appears that government intervention has not been able to cure the ills in the economy. For several decades, economic performance has not been impressive. The continued economic crisis, with the associated problems of high inflationary pressure, high exchange rate, debt overhang, adverse balance of payment and high inflation rates is difficult to explain (Balami, 2006). Consequently, the full potentials of labour-surplus economy have not been fully exploited.

The severities of poverty became more pronounced in the 1980s and 1990s, thus necessitating the formulations of specific programs aimed at poverty reduction. The persistent high level of poverty in Nigeria is traced down to policy error which is largely caused by the failure government to modify and fine tune the received macro-economic doctrine to suite the Nigerian context and complexity (Agenor, 2002). According to Agenor (2002) Macroeconomic policies have been rigorously adopted by the Nigerian government such as exchange rate devaluation, trade policy, monetary and fiscal policy but these policies have not yielded desirable results. In the opinion of Agenor (2002) the IMF conditions for the grant of the 1986 loan to Nigeria and the devaluation of the nairais the major cause of Nigeria economic woes creating inflation, unemployment and poverty. This study examines the effect of macroeconomic policies on poverty level in Nigeria. The study period covers the period of 1980 – 2015 based on the availability of relevant data especially data on poverty rate.

**2. Literature Review and Theoretical Framework**

*Empirical Review*

An appraisal of literatures on unemployment, inflation and poverty rate reveals that several scholars and researchers worldwide have attempted to examine the subject matter with scope ranging from country-specific studies to panel of countries. Some of these empirical literatures are reviewed in this section.

Khan and Senhadji, (2011) examine the issue of the existence of threshold effects in the relationship between inflation, unemployment and poverty, using SVAR econometric techniques that provide procedures for estimation and inference for 140 developed and developing countries covering 1995-2013. They estimate a threshold level of inflation above which inflation and unemployment significantly increases poverty rate at 1–3 percent for developed countries and 11–12 percent for developing countries. The positive and significant relationship between inflation, unemployment and poverty, for inflation rates above the threshold level, is quite robust with respect to the estimation method, perturbations in the location of the threshold level, the exclusion of high-inflation observations, data frequency, and alternative specifications.

Powers (2012) adopted a consumption based approach to measure poverty in the West Africa using a random effect model. Analyzing panel data using eight West African countries from 2000 through 2012, she found a robust and relatively large positive relationship between inflation and the consumption poverty rate. Powers argues that inflation affects the poor directly through a decline in their real wages owing to the short-run rigidity of nominal wages.

Romer and Romer (2013) studied the impact unemployment, poverty and inequality on Gross Domestic Product in developing countries including West African Countries using Population Average estimation technique. They found that regression of the change in poverty on the unanticipated change in GDP produced a small and insignificant coefficient. However, the relationship between the change in unemployment rate and the anticipated change in GDP was significant. The point estimate implies that an anticipated increase in unemployment of one percentage point is associated with a decline in GDP of 0.2 percentage points. According to Romer, unanticipated inflation reduces the real value of nominal assets and liabilities. It therefore causes real capital losses for nominal creditors and real capital gains for nominal debtors. If the poor are net nominal debtors, these effects benefit them.

Ahmed and Mortaza, (2011) postulated that moderate and stable inflation rates promote the development process of a country, and hence economic growth and reduction in poverty. Moderate inflation supplements return to savers, enhances investment, and therefore, accelerates economic growth of the country. They explore the present relationship between inflation, poverty and economic growth in the context of Bangladesh. Using annual data set on real GDP, Poverty rate and CPI for the period of 1980 to 2009, an assessment of empirical evidence has been acquired through the co-integration and error correction models. They also explore what the threshold level of inflation should be for the economy. It is established that there exists a statistically significant long-run negative relationship between inflation, poverty rate and economic growth for the country as indicated by a statistically significant long-run negative relationship between CPI, Poverty rate and real GDP. The estimated threshold model suggests 6-percent as the threshold level (i.e., structural break point) of inflation above which inflation adversely affects economic growth and increase poverty incidence.

Quartey, (2013) put forward that the aim of the policy of price stability is to provide a stable environment for real sector activities to flourish but the outcome of the policy on real sector activities in Ghana has not been subjected to any empirical investigation. He studied Stagflation and macroeconomic performance in Ghana Using time series data. The study finds that economic performance is higher under low inflation era than when inflation is high. The results are robust and show that the revenue maximizing rate of growth for Ghana is 9.14 per cent using quarterly data over the period 1990-2011 with least square multiple regression analysis. It is also deduced from the study that the single digit inflation target set by the Central Bank Ghana is not growth maximizing.

Fielding, (2013) uses monthly time-series data on the prices of 96 individual products in the 37 states of Nigeria to analyze the factors that drive inflation volatility and poverty incidence with VAR. Among the significant determinants of volatility are average inflation rates, transport and communication infrastructure, consumer access to credit markets and urbanization. Analysis of the data reveals that there is substantial heterogeneity across products in relative importance of these non-monetary factors that drive inflation volatility and poverty incidence. Accordingly, better transport and communication infrastructure, as captured by road length, literacy and linguistic homogeneity, are associated with lower inflation volatility and poverty rate in a state. However, more extensive access to credit facilities is associated with higher inflation volatility, as is urbanization. Since most changes in inflation are unanticipated, these results apply equally to conditional and unconditional poverty incidence.

Muhammad, et al., (2011) examines the role played by unemployment on the making of the Nigerian Gross Domestic Product (GDP) for a period of nine years (2000 - 2008). Using the regression analysis, findings showed that unemployment has an enormous effect (over 65 percent) on the making of the Nigerian GDP and there exist an inverse relationship between the model (unemployment) and the GDP - increase in the model leads to decrease on the GDP and vice versa.

Ibrahim and Umar, (2008) assess the determinants of poverty as well the poverty coping strategies among farming households in Nasarawa State, Nigeria. The study employed simple random sampling to select 150 farming households and used Costs of Calorie method and Discriminant Analysis to determine the incidence of poverty as well as its determinants respectively. The incidence of poverty among the sampled households was found to be high and the major determinants of poverty include household size, number of income sources of the household head, number of household members employed outside agriculture and the number of literate adult males and females in the household. The major poverty coping strategies include skipping of meals, reduction in the quantity of meals served and engaging in wage labour. The study recommends that the farming households should be effectively involved in the formulation of strategies for imparting knowledge on family planning to the farming households.

Bakare (2010) examines the determinants of the urban unemployment in Nigeria. The variables for include level of unemployment and demand for labour, supply of labour, population, inflation, capacity utilization, gross capital formation and nominal wage rate. Using time series secondary data and parsimonious error correction mechanism, the study found that the rising nominal wages and the accelerated growth of population which affected the supply side through a high and rapid increase in labour force relative to the absorptive capacity of the economy appear to be the main determinant of high unemployment in Nigeria.

Bello and Abdul, (2010) examine poverty situation in Nigeria by employing the data of economic growth and millennium development goals (MDGs) expenditure. The methodology employed was panel data analysis consisting of pooled model, fixed**-**effects, random**-**effects and weighted least square. The results revealed that, a unit increase in per capita GDP led to 0.6 percent increase in poverty. Similarly, a unit increase in MDG expenditure resulted in 11.56 units increase in relative poverty in the pooled model. The study concluded that economic growth and MDG spending has not substantially reduced poverty over the sample period.

Although previous arguments and evidence tends to support the view that inflation affects poverty positively, there are counter arguments to this. The UN Report on the World Social Situation 2010, *Rethinking Poverty,* raises a number of interesting questions: If inflation reduces real wages, then employment should rise, creating more income-earning opportunities for workers. Therefore, the employment effect of inflation (creating more jobs because of lower labor costs) can outweigh the real-wage effect (lower income) on poverty. This is likely to be the case, as the inflation (real wage) elasticity of poverty is found to be significantly less than the output (employment) elasticity of poverty (UN Report, 2010). Furthermore, most of the poor are net debtors and inflation reduces the real value of their debt. So this way inflation may have a negative correlation with poverty. Thus, the effect of inflation on poverty is not straightforward. Poverty may be positively correlated with inflation or the reverse can also be the case.

*Theoretical Framework*

The Human capital theory of poverty serves as the Theoretical Framework for this study. The human capital theory can be adequately use to explain the effect of government initatives and policies on poverty. The human capital theory of poverty laid emphasis in the promotion of the crucial aspect of human capital based on the promotion of human capital efficiency through aggregate investment in public education. The role of the government in the economy therefore takes the centre of the stage. It is contended that government intervention against poverty is needed in a wide variety of economic issues, from tackling poverty to promoting human capital accumulation through investment in public education, which can both encourage economic growth via the famous multipliers and tackle poverty through the development of abilities it entails. This is in stark contrast with the classical and neoclassical view that the presence of the government in all spheres of the economy should be limited.

From the set of macroeconomic variables, the human capita theory stress that, aggregate public investment investment in terms of government capital spending, with its positive effect in employment, emerges as the key element in generating the type of growth that permits poverty relief. While growth is likely to reduce absolute poverty, because it will tend to raise the incomes of all members of society, the beneficial effects on relative poverty of the expansion of economic activity will only apply so long as the rise in average income that economic growth permits is accompanied by a reduction in the variance of the income distribution or it is accompanied by an increase in dispersion that does not offset the increase in the average level of income (Granville and Mallick, 2006). As Dickens and Ellwood (2001) indicate, the growth in wages that usually accompanies growth in GDP can cause surges in relative poverty if wage dispersion rises along with it, even if the average wage increases. The effect on absolute poverty is ambiguous provided that the average wage also increases. This hypothesis corresponds to the theory that poverty rates can actually persist and even grow despite economic growth if the deprived are left off the "growth wagon" (Dickens and Ellwood, 2001).

The paramount importance assigned to unemployment as a primary source of poverty under the liberal view is based on the logic that if individuals do not receive labour income, they are more likely to be poor. This sensitivity of poverty to unemployment can actually be amplified if poor individuals tend to experience discontinuous, short employment spells throughout the lifetime; if poor people who enroll in a job fail to retain it, no matter their pay, they will likely return to poverty when exiting employment given that the amount of accumulated savings is likely to be insufficient for maintaining the standard of living above the poverty line (Aassve et al, 2005). In some pension and social security systems they are also likely to face poverty in retirement due to gaps in entitlements (Pemberton et al 2013).

Hence, the steadiness of employment is a central feature in preventing poverty persistence, not least because it also enables individuals to envisage better career prospects that allow higher expected future income, thereby facilitating borrowing (leading to longer term consumption-saving decisions) and investment in one’s own skills and knowledge (human capital) as well as social capital (Ulimwengu, 2008). In terms of Sen (1983, 1999), it influences ability to transform assets into entitlements. It underlines the importance of distinguishing between transitory (short term) and persistent (lifelong) poverty.

**3. Methodology**

*Research Design*

This study make use of analytical research design. The tool of analysis is the Ordinary Least Squares (OLS) method. OLS estimator is efficient and possesses the BLUE (Best Linear Unbiased Estimator) property among other class of estimator. It should be noted that the BLUE properties is subjected to the fulfillment of the classical assumptions of the ordinary least squares (See Davidson and Mackinnon 1998, Greene 2005, Hansen 2006 and Christ 1996).

*Model Specification*

A model based on Human Capital theory of poverty is adapted from the work of Pemberton et al (2013) and restricted to incorporate the effect of unemployment and inflation on poverty incidence in Nigeria.

Conventionally,

POV = f(GEXP, MS, INT, INF) ……..3.1

Where,

POV is poverty rate (percentage of total population living below 2 USD a day)

GEXP is government capital expenditure

MS is money supply

INT is interest rate

INF is Inflation rate

Equation 3.1 is expanded to and is given as;

POVt = α0 + α1GEXPt + α2MSt + α3INTt + α4INFt + µt ……………………………3.2

α0- α4 are parameters to be estimated

µt is the error term

Note: µt ~ IID(0, σµ2),

**4. Analysis and Interpretation of Results**

*Stationarity Result*

The five variables (POV, GEXP, MS, INT, and INF) underwent unit root test using the Augmented Dickey-Fuller (ADF) test. As is the case most times, some of variables were found to be non-stationary at levels Government Capital Expenditure (GEXP). POV, MS and INF were stationary at first difference but INT was stationary at second difference I(2).

Table 4.1: Unit Root Stationarity Result

|  |  |  |  |
| --- | --- | --- | --- |
| Time Series | ADF Statistics | Critical Value | Stationary Status |
| POV | -11.03404 | -3.64634 (1%)  -2.95402 (5%)  -2.61582 (10%) | I(1) |
| GEXP | -4.183871 | -2.63690 (1%)  -1.95133 (5%)  -1.61075 (10%) | I(0) |
| MS | -9.394201 | -4.262735 1%)  -3.55297 (5%)  -3.20964(10%) | I(1) |
| INF | -4.783871 | -2.63690 (1%)  -1.95133 (5%)  -1.61075 (10%) | I(1) |
| INT | -5.394201 | -4.262735 1%)  -3.55297 (5%)  -3.20964(10%) | I(2) |

*The critical values for rejection of hypothesis of unit root were from MacKinnon (1991) as reported in eviews 9.0*

*Cointegration Test*

*Augmented Engle-Granger Cointegration Result*

Δµt=-0.611991µt-1 ………………..4.1

t (**-**4.079389)

The value in parenthesis is the ADF statistic

|  |  |
| --- | --- |
| Level of Significance | Critical Values |
| 1% | -2.6347 |
| 5% | -1.9510 |
| 10% | -1.6109 |

*Source: Author’s Computation using E-views 9.0*

Due to the non-stationarity of time series, the cointegration test was done using the Augumented Engel Granger test stated in chapter three. This became necessary to avoid a spurious regression result. Using the Augumented Engel Granger test with critical value from MacKinnon (1991), the variables were cointegrated at 1per cent level of significance since the AEG statistics is greater than the absolute critical value.

Table 4.2 Regression Result, Dependent Variable: POV

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Independent Variables | Coefficient | Standard Error | t-Statistic | P-Value |
| Constant Intercept | 16.15268 | 5.854008 | 2.759251 | 0.0096 |
| GEXP | -0.183631 | 0.034939 | -5.255791 | 0.0000 |
| MS | -1.136012 | 0.927849 | -4.112985 | 0.0013 |
| INF | 0.182131 | 0.182339 | 4.229791 | 0.0000 |
| INT | 1.236070 | 0.387849 | 3.186985 | 0.0033 |
| R2 | 0.772757 | F Statistic | 35.13937 | Pr(0.0000) |
| Adjusted R2 | 0.750766 | D-W Statistic | 2.304322 |  |

*Source: Author’s Computation Using E-views 9.0*

A unit increase in GEXP on the average holding other variables constant will lead to 0.183631 unit decrease in POV. This shows that inflation rate has a positive impact on Poverty level. This result fulfils apriori expectation.

In the same vein, a unit increase in MS on the average holding other variables constant will lead to 1.136012 unit decrease in POV. This shows that unemployment rate has a positive impact on poverty level in Nigeria. This result fulfilled apriori expectation. Also, a unit increase in interest rate (INT) and inflation rate (INF) on the average leads to 0.182131 and 1.236070 unit increase in Poverty level in Nigeria

**5. Conclusion and Recommendations**

This study is carried out to empirically evaluate the effect of macroeconomic policies on poverty level in Nigeria from 1980-2015. Three variables are used in these studies which are Poverty level (POV), Government Capital Expenditure (GEXP), Money Supply (MS), Interest Rate (INT) and Inflation Rate (INF). The variables were subjected to unit root test, as is the case most times, some of variables were found to be non-stationary at levels except Government Capital Expenditure (GEXP) which was stationary at level I(0). POV, MS and INF were stationary at first difference but INT was stationary at second difference I(2).

Since the Variables Were not all stationary at level but at the same order of I(1) the residual based cointegration test was used to test for cointegration among the variables using the augmented Engel-Granger test and the variables were found to be cointegrated at 1% level of significance. Error correction mechanism (ECM) was used to determine the short-run relationship between the variables and the ECM parameter was negative and statistically significant which shows that there exist short-run relationship between the variables.

The OLS result obtained showed that inflation and interest rate had a positive impact on poverty level in Nigeria, with the relationship being statistically significant. The result is consistent with so many researches done in this regard. Government capital expenditure and money supply have a negative impact on poverty level in Nigeria and the impact is significant.

The *R-Squared* shows that the model has a good fit with about 77 percent of the change in POV was explained by changes in the independent variables. The evidences from various econometrics analyses from this study revealed that, macroeconomic policies such as money supply, government capital expenditure, interest rate and inflation rate have a statistically significant impact on poverty level in Nigeria from 1980-2015. The implication of this is that an increase in money supply and government expenditure have a negative effect on poverty level but an increase in Interest rate and inflation rate will lead to higher poverty level in Nigeria since interest rate and inflation has a positive and significant impact on poverty level. The finding of this study shows that poverty is eminent in Nigeria and requires a pragmatic approach to minimize it. Increasing the employment rate is not only the way out of this trap but making sure that the most vulnerable group of the economy is taken care of which would then enhance economic growth and development. It is very axiomatic to state that in contemporary times most developed countries of the world have been able to achieve remarkable feat especially in the areas of high rate of employment opportunities, social security and high standard of living. This is not only because they are able to have citizens gainfully employed by their governments. But as a result of imbibing in their citizens the culture and habit of making use of available resources in their areas to get themselves duly employed and not bound to the shackles of poverty.

However, following the summary from this study, it is suggested that further studies on this subject matter need to be taken into consideration, the use of simultaneous equation framework which is capable of explaining better the interdependent relationships and possibility of reverse causation among poverty, inflation and unemployment in Nigeria can be adopted for further research.

From the conclusion, the following recommendations are made;

1. Since government capital expenditure has a negative impact on poverty level, emphasis should be laid on increasing government capital expenditure especially those meant for development programs and projects. This will reduce poverty level in the country.
2. Having established a positive and significant relationship between inflation and poverty, the government should strive to increase supply by increasing domestic production which will bring down price level and increase welfare. A strict macroeconomic policy such as contractionary fiscal and monetary policy should be pursued to curb inflation and reduce poverty level in Nigeria.
3. Since money supply has a negative impact on poverty government should adopted expansionary fiscal and monetary policy to increase money supply into the economy so as to reduce poverty rate.
4. Finally having established a positive relationship between interest rate and poverty, interest rate charged on loans should be reduced to encourage investment leading to a reduction in poverty level.

**References**

Aassve, A. Burgess, S. Dickson, M. and Propper, C. ( 2005). Modelling Poverty by not Modelling Poverty: An Application of a Simultaneous Hazards Approach to the UK. Publisher Centre for Market and Public Organisation 05/134, Department of Economics, University of Bristol, UK.

Agenor, P. R. (2002). “Macroeconomic Adjustment and the Poor: Analytical Issues and Cross-Country Evidence”, World Bank Working Paper No.: 2788, World Bank: Washington, DC.

Ahmed S. and G. Mortaza (2011). “Inflation and Economic Growth in Bangladesh: 1981-2005. Research Department, Bank of Bangladesh.http://siteresources.worldbank.org/PSGLP/Resources/wp0604.pdf

Aluko, I.R. (2005). Reducing Unemployment through the Informal Sector: A Case Study of Nigeria. European Journal of Economics, Finance and Administrative Sciences ISSN 1450-2275 Issue 11.

Balami, J.E. (2006). “Unemployment statistics and what they mean”. Monthly Labour Bulletin, Washington DC; US Department of Labour.

Beck, T. (2013). Bank financing for SMEs, lessons from the literature, National Institute Economic Review, 225, R23-R38.

Becker, G. S. (1964). Human Capital: A Theoretical and Empirical Analysis University of Chicago Press.

Berthod, N. and Grundler, K. (2013). The Determinants of Stagflation in a Panel of Countries. Journal for social science, Volume 12 (112-141)

Blinder, A. and Alan, S. (1979). Economic Policy and the Great Stagflation Academic Press: New York.

Brooman, M. (1973). the cost and benefit of going from low inflation to price stability. NBEK working paper 5649.

Bruno, I. Michael, P. and Jeffrey D. Sachs (1985). Economics of Worldwide Stagflation Harvard University Press: Cambridge, MA.

Cardoso, M. (2012). Poverty Comparisons: A Guide to Concepts and Methods. The World Bank, Washington D.C.

Central Bank of Nigeria (2017). Annual Report and Financial Statement for the Year Ended 31st December. Abuja: Central Bank of Nigeria.

Cuthbertson, A. M. (2002). Vector Auto Regresive and Block Endogeneity test, “Econometrical, Vol. 37, Pp. 424-435.

Dickens, R. and Ellwood, D. T. (2001). Whither poverty in Great Britain and the United States? The determinants of changing poverty and whether work will work, NBER Working Paper 8253.

Easterly, W and S Fischer (2001). Inflation and the poor, Journal of Money, Credit and Banking, 33, 160-78.

Fielding, P. (2013). Price Stability and the Growth Maximizing Rate of Inflation for Ghana, Modern Economy, No. 1, 180-194.

Frieldman, M. (1963). The Relative Stability of Monetary Velocity and Investment Multiplier in the US, Impacts of Monetary Policy Commission on Money and Credit, Englewood cliffs and New Jersey: Prentice-Hill. Nathan Pelesai Audu 150.

Gans, H. (1973). "The Positive Functions of Poverty", American Journal of Sociology, 78, No. 2.

Gbosi, A.N. (2004). Contemporary Macroeconomic Problems and Stabilization Policies in Nigeria, Antovic Ventures, Port Harcourt.

Glahe, A.N. (1977). Banks, Financial Crisis and the Nigerian Economy Today, Corporate Impression Publishers, Owerri.

Gokal, V. S. (1977). “Relationship Between Inflation and Economic Growth” Reserve Bank of Fiji Working Paper 2004/04.

Granville, B., Mallick, S. (2006). Integrating poverty reduction in IMF-World Bank models, Working Papers id: 502, Social Sciences.

Gordon D. (2013). The concept and measurement of poverty in eds C Pantazis, D Gordon and R Levitas, “Poverty and social exclusion in Britain”, Policy Press.

Gregorio, J. (1996). Inflation, Growth, and Central Banks: Theory and Evidence, World Bank Policy Research Working Paper 1575, Policy Research Department, Macroeconomics and Growth Division.

Gujarati, D. (2009). Basic Econometrics, (3nd edition) Wileys Education Ltd Texas U.S.A.

Handley, O.W. Powers, E. T. and Lema I. (2009). Inflation, Unemployment, and Poverty Revisited. Economic Review, Federal Reserve Bank of Kansas City. Qtr III.

Hickey, S. and Bracking, S. (2005). Exploring the politics of chronic poverty, from representation to a politics of justice. World Development, 33, 851-865.

Hicks, R. (1977). The role of wages in the inflation process. American Economic Review, 1. 78(2), 276-283.

Hills, J. and Stewart, K. (2005). A more equal society? New labour, poverty, inequality and exclusion (First ed.), Bristol, United Kingdom: The Policy Press.

International Labour Organization (2009). African Development Indicators 2009, the World Bank, Washington, D. C.

Jinghan, M. L. (2006). Macroeconomic Theory 2Nd edition, Vilfranda Pubisher. India.

Johnson, C. K. and Mason, P. L. (2012). Theories of poverty, traditional explanations and new directions in ed Jefferson, P."The Oxford Handbook of the Economics of Poverty", Oxford University Press.

Johnson, G. (1975). The supper neutrality of money in the US: An interpretation of the Evidence Econometric, Econometrica 54(1), 1 - 21.

Jonung, R. (2009). The role of wages in the inflation process American Economic Review, 1. 78(2), 276-283.

Khan, M. S. and A. S. Senhadji (2011). Threshold Effects in the Relationship between Inflation and Growth, IMF Staff Papers, Vol. 48, No. 1.

Kyzyma, I. (2013). Changes in the patterns of poverty in Germany, 1992-2009, CEPS-Insead Working Paper No 2013-06.

Li, M. (2006). Inflation and economic growth: threshold effects and transmission mechanisms. Department of Economics, University of Alberta.http://economics.ca/2006/papers/0176.pdf.

Loury, G. (1977). A dynamic theory of racial income differences", in P. Wallace, & A. LaMond (eds.): “Women, minorities, and employment discrimination” Lexington, MA: Heath.

Lupu, D. V. (2012). The Correlation between Inflation and economic Growth in Romania. Lucrări Ştiinţifice - Vol. 53, Seria Zootehnie.

Lydall, H., (1968). The Structure of Earnings, Oxford University Press, Oxford.

Machin, S. (2009). Education and inequality in eds. W Salverda, B Nolan and T M Smeeding, “The Oxford Handbook of Economic Inequality”, Oxford University Press.

Mallik, G. and A. Chowdhury (2001). Inflation and Economic Growth: Evidence from South Asian Countries” Asian Pacific Development Journal Vol. 8. No.1. pp 123-135.

Morazes, J. and Pintak, I. (2007). Theories of Global Poverty Comparing Developed World and Developing World Frameworks", Journal of Human Behavior in the Social Environment, Volume 16, Issue 1-2.

Mundell, R. (1965). Growth, Stability and Inflationary Finance, Journal of Political Economy, 73, pp. 97-109.

Nolan, B. and Marx, I. (2009). Economic inequality, poverty and social exclusion”, in eds. W Salverda, B Nolan and T M Smeeding, The Oxford Handbook of Economic Inequality, Oxford University Press.

Oduro, A.D. and Aryee, I. (2015). “Investigating Chronic Poverty in West Africa” CPRC Working Paper No 28.

Osterling, K. (2007). Social Capital and neighbourhood poverty: toward an ecologically-grounded model of neighbourhood effects, Journal of Social Behaviour in the Social Environment, Volume 16, Issue 1-2.

Pemberton, S., Sutton, E., Fahmy, E. (2013). A review of the qualitative evidence relating to the experience of poverty and exclusion, PSE-UK Working Paper Methods Series No. 22.

Phillips, A.W. (1958). The Relationship between Unemployment and Rate of Change in Money Wage Rates in the United Kingdom. Economica 25, November.

Quartey, Y. A. (2013). Inflation and Growth: An Estimate of the Threshold Level of Inflation in Ghana, State Bank of Ghana – Research Bulletin, Vol.1, No. 1-2, pp. 35-44.

Sargsyan, G. R. (2013). Inflation and output in Armenia: The Threshold Effect Revisited, Central Bank of Armenia. http://www.aiprg.net/UserFiles/File/jan-2005/grigorsargsyan.pdf.

Schumpeter, J. (1934). Innovation and Growth in Industrial Countries, Economic Policy 15. American Journal for Development, 12-24

Sen, A. (1983). Poor, relatively speaking, Oxford Economic Papers, 35, 153-169.

Sergii, P. (2011). Inflation and Economic Growth: The Non-Linear Relationship, Evidence from CIS Countries. http://kse.org.ua/uploads/file/Pypko.pdf.

Sweezy, F.G. (1940), Unemployment, Growth and Taxation in Industrial Countries, Economic Policy 15.

Talukdar, S.A. (2012). Poverty, Inflation and Economic Growth: Empirical Evidence from Pakistan. World Applied Sciences Journal. Dubai, UAE. pp. 1058-1063.

Townsend, F. G. (1992), Unemployment, Growth and Taxation in Industrial Countries, Economic Policy 15.

Ulimwengu, J. (2008). Persistent poverty and Welfare Programs in the United States, IFPRI Discussion Paper 00818.

UNCTAD (2006). The Least Developed Countries Report 2006. Escaping the Poverty Trap. United Nations, Geneva.

Western, J. S. and Dwan, K. (2005). The importance of visibility for social inequality research, Australian Journal of Social Issues, 40(1), 125-141.

World Bank (2014). Poverty indices in sub-Saharan Africa 2013/2014, the World Bank, Washington, D. C.



**Impact of Public Education Finance on Private Sector Investment in Nigeria**

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**Abstract**

*The study empirically examined the impact of public education finance on private investment in Nigeria from 1986 to 2016. The study used time series data from the Central Bank of Nigeria Statistical Bulletin of December, 2016 and Annual Statistics Report of the National Bureau of Statistics in Nigeria of (2017). The study used multiple regression analysis with Johansen Co-integration and Error Correction Model (ECM) for the estimation of the variables. The co-integration result shows that the variables are co-integrated and there is a long run relationship among the economic variables. While Error Correction Model (ECM) results revealed that there is a significant and positive relationship between public education finance and private investment in Nigeria and the result shows that public education finance has positive impact on private investment in Nigeria. The government recurrent education expenditure (GCEX), government capital education expenditure (GREXH) and total number of schools in Nigeria (TNOSN) were statistically significant in explaining the variations in the private investment in Nigeria (PIVN). On the other hand, the level of total number of students’ enrolment in Nigeria (TNSRN) was negatively related to private investment in Nigeria and it was statistically insignificant in explaining the variation in private investment in Nigeria. Therefore, the study recommends that, government should focus on educational reforms and policies that will help to increase the education expenditures especially the capital expenditure through the annual budgets to enable the sector provide the needed physical facilities, human resources and effective educational services for sustainable private investment in Nigeria.*

**Keywords:** Public Finance, Education, Private Investment, Capital and Recurrent Expenditures

**JEL** **Codes**:A10, A20

**1. Introduction**

Investment is one of the main components and elements of aggregate demand in any economy. It plays an important role on aggregate output in the economy. Investment is divided into two forms the public investment which is fully conducted by the government and the private which is fully conducted by private investors in the economy. By public investment, the government can improve economic situation of the country and by private investment, the private investors can contribute to the performance of the gross domestic product through income generation and job creation in the country. Currently, it was observed that both public and private investments simultaneously play great role to rapid economic growth (Uddin, Chowdhury and Uddin, 2015). According to Amana, Aigbedion, Nmo-Oyeleke and Onyishi (2018) reliable and continuous increase in domestic private investment also helps in reduction of poverty. Understanding the status and determinants of private investment is essential for successful and effective implementation of sustainable development goals (SDGs) and for the private sector investment to increase, there is a need for huge public finances especially in the area of infrastructure development and human capital development which are needed in the production process.

Therefore, private sector investment requires effective skilled labour that will help to drive the production process to optimum point of productivity that will guarantee maximization of production output and profit which is the major goal of any organization or private investor. However, education remains the main process of providing highly skilled human resources and supply of trained manpower in any given economy. The educational system of a nation determines the type, nature and caliber of manpower to be supplied to the various sectors in the nation and it is needed to drive the huge potential of the private sector investment in developing countries like Nigeria. The major asset any organization requires to drive any production process is human capital. Yesufu (2000), in agreement with this view, opines that “the essence of human capital development becomes one of ensuring that the workforce is continuously adapted for, and upgraded to meet, the new challenges of its total environment”. In the words of Marimuthu, Arokiasamy and Ismail (2009), human capital simply refers to the “processes that relate to training, education and other professional initiatives in order to increase the levels of knowledge, skills, abilities, values, and social assets of an employee which will lead to the employee’s job satisfaction, performance and productivity especially efficiency in the productive process of the organization.

According to Obaji (2006), the duties of providing highly quality manpower and specialist is that of the nation’s educational system especially the tertiary educational institutions. According to her, in the time past, thousands of well-trained manpower turned out in the tertiary institutions across the country were highly sought after both at home and abroad. The exploit of Nigerian experts abroad is a clear affirmation of the quality of training impacted on them by the educational institutions. However, that is not the same situation now as most Nigerian graduates are no longer employable. In recent times, the caliber of manpower graduated from the tertiary educational institutions in Nigeria is an indicator that the educational system is ineffective. This is so, because the knowledge acquired make them readily unfit for the labour market. This simply means that there is a mismatched between the skills acquired and labour market requirements for the needed private sector driven economy which is attributed to poor funding of the educational system in Nigeria (Adamu, 2003).

Therefore, in order to produce highly skilled and trained manpower for the readily private sector investment and meet the recent demand for high skilled labour in Nigeria, the government instituted deliberate educational policies and have constantly increased the educational expenditures that will guarantee the needed educational investment to stimulate the private investment in the country. In an effort to increase their share of public finance spent on education, the current national policy of education in Nigeria proffers ten percent of the total budgetary allocation as benchmark investment expenditure in education. However, the trend in the budgetary allocation to education in Nigeria has continuously fallen short of the 26% target as recommended by the United Nations Educational Scientific and Cultural Organization (UNESCO) for developing countries. There are also the challenges of delay in the release of the allocation, lack of accountability for funds allocated, the government preference for higher education, as well as frequent unhealthy political interference in education (Adetula, 2017).

Despite the government increased investment in education, the educational sector in Nigeria is beclouded by uncertainties. Most schools in Nigeria are characterized by overcrowding, poor sanitation, poor management, low students-teachers’ ratio, poor teachers’ remunerations and welfare packages. Other problems include: abandoned capital projects, inadequate funding, poor condition of service and others (National Education Policy, 2004). The resultant effects of these myriads of anomalies can be production of half-baked graduates, unsatisfied yearnings and aspirations**,** corruption, bribery and so on. The obvious poor performance in Nigerian education sector in spite of the government spending on education can lead to low level of skilled manpower needed for competitive private sector investment driven. Therefore, the question that comes to mind, is what is the level of private sector investment contribution to economic growth in Nigeria that is attributed to the performance of government increasing investment in education? Based on this, the study seeks to empirically examine the impact of public education finance on private investment in Nigeria. To achieve this objective, the paper is subdivided into five sections which are introduction, literature review, methodology, presentation of data and analysis and finally, the conclusion and recommendations.

**2. Literature Review and Theoretical Framework**

*Conceptual Review*

This study main concept is the concepts of education, public finance and private investment, each of these concepts are discussed briefly below. According to Ukeje (2002) education is a process, a product and a discipline. As a process, education is a set of activities which entails handling down the ideas, values and norms of the society across generation. As a product, education is measured by the qualities and traits displayed by the educated person. Here, the educated person is traditionally conceived of as a “knowledgeable “and “cultured” person. While as a discipline, education is defined in terms of the benefits of organized knowledge to which students are exposed to. The aims of Education in Nigeria as stated in the Nigerian National Policy on Education (2004) include: “the desire that Nigeria should be a free, just and democratic society; a land full of opportunities for all citizens; able to generate a great and dynamic economy; and growing into a united strong and self-reliant nation”.

Borode, (2006) opined that educational finance is the relationship between cost and expenditure in the production of educational services. The real cost of an activity is not simply money spent on it, but the alternative opportunities that have to be foregone or sacrificed when a particular choice is made. Resources allocated to an activity can either be measured in terms of expenditure (paid or money value) or in real terms (opportunity cost); it could be time put in by the teachers and students and services rendered by physical facilities(buildings, equipment and furniture) with respect to an educational process. The measurement of real cost is based on the opportunity cost concept. This means, if a particular choice of an activity has been made, then opportunity cost of that activity is the alternative opportunities that have been given up (Borode, 2006).

According to Ibadin (2004), public finance refers to government’s securing of financial resources to pay for goods and services which the citizens enjoy. It concerns the need for revenue, expenditure and debt operations of the government and the impact of these on the society. It also relates to the effects of collecting and spending money on the economy and the society with a view of bringing about reforms on revenue and expenditure processes. Public finance tends to concentrate on an assessment of how to reform the revenue and expenditure of government and an examination of the reform of individual taxes. On the other hand, Olagboye (2004) defines public education finance as a means by which money is provided for the development and maintenance of the entire education system. All activities that are geared towards the process of sourcing, allocating and managing public school revenues in the production of educational services for the attainment of educational objectives constitute education finance.

According to Fakiyesi (2008), investment is the process of changes in capital stock that result from a situation where an economy uses part of its current resources to create material and human capital and this process is to enhance the future earnings of the investor. Therefore, for investment to occur, a reasonable amount of resources must be transferred from one person to another. It also involves the forgoing of present consumption for the future earnings. Whereas according to Bakare (2011) public investment involves the investment carried out by the government and public corporations and organizations on social, welfare and economic infrastructure and other welfare goods and services. In summary private domestic investment refers to net changes in the level of inventories and gross fixed capital formation.

*Empirical Review*

Most authors have also examined how spending on education affects long–term growth generally finding a positive, significant relationship among them are Omotor (2004), Adebiyi and Oladele (2005), Aighokhan, Imahe and Ailemen (2005), Owoeye and Adenuga (2005), Aigbedion (2015) and Aigbedion, Iyakwari and Gyang (2017) which shows significant impact of education expenditure on economic growth in Nigeria. The studies believe that increased government expenditures will increase the level of economic growth in Nigeria. On the other hand, there are some studies that examined the determinants of private investment in some economies including Nigeria.

For instance, Asante (2000), analyzed the determinants of private investment in Ghana using a time series analysis and complementing it with a cross-sectional one over the period, 1970-1992. The results showed that the variables that had a significant positive relationship with investment are: lagged investment, public investment, private sector credit, real interest rate, and real exchange rate. Ribeiro (2001) employed the Johansen multivariate co-integration technique and Engle-Granger Two-step approach to model private-sector investment in Brazil during the period, 1956-1996. The results reveal a positive impact of output, public investment and financial variables and the negative effect of exchange rate. While Luintel and Mavrotas (2005) investigated domestic private investment behavior in a panel of 24 low-income and middle-income countries spanning the period, 1981-2000. The study revealed that indicators of financial sector development and other standard macroeconomic determinants of private investment appear significant in explaining private investment behaviour in the sample. However, the estimated parameters and adjustment dynamics exhibit important cross-country differences. Lesotlho (2006) study supports the existence of short-run dynamic adjustment and the long run equilibrium relationship between the macroeconomic variables used in the study and private investment level. Public investment, bank credit to the private sector and the real interest rate affect private investment level in the short run, while GDP growth and real exchange rate affect private investment in the long run.

Also, Frimpong and Marbuah (2010) did an empirical assessment of factors that have either stimulated or dampened private sector investment in Ghana. Their results suggest that private investment is determined in the short run by public investment, inflation, real interest rate, openness, real exchange rate and a regime of constitutional rule, while real output, inflation, external debt, real interest rate, openness and real exchange rate significantly influenced private investment response in the long-run. Fowowe (2011) conducted an empirical investigation of the effect of financial sector reforms on private investment in selected Sub-Saharan African countries. An index is developed to track the gradual progress made with the implementation of the phases of the reforms. The results show that financial sector reforms (measured by the index) have had a positive effect on private investment in the selected countries considered for his study, thus offering support to the financial liberalization hypothesis.

More recently, the work of Amana, Aigbedion, Mmo-Oyeleke and Onyishi, (2018) examined the impact of government to expenditure on private investment in Nigeria from 1986-2016. Time series data and econometric tools was used to test for the stationarity, and co-integration, while Auto Regressive Distributed Lag Model were adopted to estimate the long-run and short run impact of government expenditure and private investment in Nigeria. The study revealed that at the long run, Government Recurrent Expenditure and Inflation Rate were positively related to Private Investment in Nigeria while Government Capital Expenditure and Interest Rate in Nigeria were negatively related to Private Investment.

Finally, most of the empirical studies reviewed are centered on the impact of education expenditure on economic growth, the determinants of private investment and the impact of government expenditure on private investment. But this study focuses on the impact of public education finance on private investment in Nigeria.

*Theoretical Framework*

This study foundation is hinged on the theoretical framework of Solow (1994) because the growth model is an endogenous model of economic growth and output theory and this theory appears to be the most suitable for the study and studies on education finance, private investment out and public investment output. The model suggests that endogenous factors such as government policies (fiscal and monetary policies), political stability, market distortions, human capital (education and health expenditures), etc., can significantly affect national output which is the summation of private and government investment in the economy. It is a widely used growth model to provide a systemic investigation of the human capital-national output growth nexus. For example, Uwatt (2003), Adamu (2003) and Aigbedion (2015), used it to assess the impact of human capital and education on economic growth in Nigerian.

This modern output growth model depends on the accumulation of physical capital and an increase in labour force with improved technological embodiment without which labour cannot be effective. Human capital is a factor influencing labour productivity because it facilitates the absorption of new technology, increases the rate of innovativeness and promotes efficient management (Adamu, 2003). Consequently, for high labour productivity, an integral part of technological progress is investment in human capital and thus is termed endogenous factor because accumulation of physical capital is enhanced by the knowledge, skills, attitudes and health status of the people who partake in such exercise. Thus, there is a strong and positive relationship between human capital development in terms of increased expenditure on educational investment and private investment and private output growth in the economy.

**3. Methodology**

*Sources of Data and Methods of Analysis*

This study used time series data collected from the publications of various organizations and agencies. Data on private investment in Nigeria, recurrent education expenditure and capital education expenditure were collected from Central Bank of Nigeria (CBN) Statistical Bulletin of December, 2016. The data on total number of schools and total number of student’s enrolment in Nigeria were gotten from Annual Statistics Report of the National Bureau of Statistics (NBS) reported in July 2017. The Johansen Co-integration and the Error Correction Model (ECM) were adopted for this study because they help to determine the short run and long run relationships among the economic variables. Also, the error correction model (ECM) was used to establish the short-run impact of public education finance on private investment in Nigeria.

*Model Specification*

The model used in this study was adopted from the works of Uwatt (2003), Adamu (2003) and Aigbedion (2015) on the relationship between public education investment and national output (economic growth) in Nigeria. The models were modified based on the objective of the study. Therefore, the equation is the modified model.

PIVNt = *f*(RECEXPt, CAPEXPt, TNOSNt, TNSRNt) ……….….3.1

Therefore, explicitly the model becomes

PIVNt = β0 + β1RECEXPt + β1CAPEXPt + β2TNOSN*t* + β3TNSRNt + *μt*  ………………………..………………….3.2

Where: PIVNt is private investment in Nigeria at time t , RECEXPt is recurrent education expenditure in Nigeria at time t, CAPEXPt is the capital education expenditure in Nigeria at time t , TNOSNt, is the total number of schools in Nigeria at time t and TNSRNt is the total number of student’s enrolment in Nigeria. While β0, β1, β2, β3 and β4 are Parameters to be estimated and *μt* is white noise error term. While the Error Correction Model (ECM) that was used in this study is specified as follows:

The model above is used to adjust the estimation until the ECM turned negative. The negative sign of coefficient of the error correction term ECM (-1) shows the statistical significance of the equation in terms of its associated t-value and probability value. The a priori expectation is that***,*** *β1, β2, β3, β4* and *β5, >< 0*indicatinga positive or negative relationship between public education finance and private investment in Nigeria.

**4. Presentation and Discussion of Results**

*Descriptive Analysis of the Variables*

The major summary of descriptive analysis of relevant variables of study is as reported in Table 4.1.

Table 4.1: Descriptive Analysis of the Variables

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | PINV | RECEXP | CAPEXP | TNOSN | TNSRN |
| Mean | 404.7484 | 108.0029 | 53.31484 | 71769.06 | 27105022 |
| Median | 132.4000 | 57.96000 | 30.03000 | 56223.00 | 29319493 |
| Maximum | 1360.300 | 390.4200 | 154.7100 | 145614.0 | 38310638 |
| Minimum | 3.100000 | 0.230000 | 0.620000 | 30890.00 | 14625140 |
| Std. Dev. | 446.7406 | 130.1996 | 54.94986 | 34075.38 | 7059369. |
| Skewness | 0.769135 | 1.075357 | 0.709465 | 0.718573 | -0.429955 |
| Kurtosis | 2.123221 | 2.663601 | 2.090707 | 2.119057 | 1.973352 |
| Jarque-Bera | 4.049391 | 6.120872 | 3.668564 | 3.670203 | 2.316542 |
| Probability | 0.132034 | 0.046867 | 0.159728 | 0.159597 | 0.314029 |
| Sum | 12547.20 | 3348.090 | 1652.760 | 2224841. | 8.40E+08 |
| Sum Sq. Dev. | 5987315. | 508557.8 | 90584.61 | 3.48E+10 | 1.50E+15 |
| Observations | 31 | 31 | 31 | 31 | 31 |

***Source:*** *Author’s Computation from E-views 9.0, (2018)*

The mean, median, standard deviation as well as the skewness and kurtosis measures of the variables under consideration are given. The mean values of PINV, RECEXP, CAPEXP, TNOSN and TNSRN are 404.75, 108.00, 53.31, 71769.06 and 27105022 with various units and values respectively. Their respective standard deviations are 446.74, 130.11, 54.95, 34075.38 and 7059369 with various units and values respectively. The Jarque-Bera test of normality shows that the error term in our specified equation is normally distributed. This is evidenced by the respective insignificant Jarque-Bera statistics of the relevant variables.

*Trend Analysis of the Variables*

Graphically, the trend analyses in Fig. 4.1



*Figure 4.1 Trend Analysis*

show that the variables fluctuate at one point or the other during the period under review. This was attributed to the effects of public education finance and private investment conditions that would have had attendant effects on some of the variables.

*Stationarity Test of the Variables*

The four variables were subjected to unit root test using the Augmented Dickey-Fuller (ADF) test.

Table 4.2: Augmented Dickey-Fuller Results

|  |  |  |  |
| --- | --- | --- | --- |
| Variables | ADF Statistics | Critical Value | Stationary Status |
| PIVN | -6.553987 | -3.679322(01%)  -2.967767(05%)  -2.622989(10%) | 1(1) |
| RECEXP | -4.908456 | -3.679322(01%)  -2.967767(05%)  -2.622989(10%) | 1(1) |
| CAPEXP | -6.262084 | -3.679322(01%)  -2.967767(05%)  -2.622989(10%) | 1(1) |
| TNOSN | -8.374451 | -3.679322(01%)  -2.967767(05%)  -2.622989(10%) | 1(1) |
| TNSRN | -8.374451 | -3.679322(01%)  -2.967767(05%)  -2.622989(10%) | I(1) |

***Source:*** *Author’s Computation from E-views 9.0, (2018)*

As is the case most times, all the variables were found to be non-stationary at levels as shown in Table 4.2. All the variables were stationary at first difference. This implies that the variables can be estimated using the co-integration test to show the long run relationships among them and Error Correction Model can be used to determine the short run relationships among the economic variables.

*Pairwise Granger Causality Tests*

Table 4.3 presents the results of the Pairwise Granger Causality Tests.

Table 4.3: Pairwise Granger Causality Results

|  |  |  |  |
| --- | --- | --- | --- |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
| CAPEXP does not Granger Cause PINV | 29 | 4.32883 | 0.0248 |
| PINV does not Granger Cause CAPEXP | | 3.67032 | 0.0407 |
| PINV does not Granger Cause TNOSN | | 6.32890 | 0.0062 |
| TNSRN does not Granger Cause CAPEXP | 29 | 5.14825 | 0.0138 |

***Source:*** *Author’s Computation from E-views 9.0, (2018)*

All the listed pair of variables have causal relationships among them. This means that CAPEXP Granger Cause PINV, PINV Granger Cause CAPEXP, PINV Granger Cause TNOSN and TNSRN Granger Cause CAPEXP. That is there is a causal relationship among the variables given the probability values of the variables at 5 percent level of significance. Therefore, the null hypotheses which stated that there are no causal relationships among variables are rejected.

*Co-integration Results*

Table 4.4 shows the co-integration results and long run relationships existing among the variables of study.

Table 4.4: Co-integration Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Unrestricted Cointegration Rank Test (Trace) | | | |  |
| Hypothesized |  | Trace | 0.05 |  |
| No. of CE(s) | Eigenvalue | Statistic | Critical Value | Prob.\*\* |
| None \* | 0.910059 | 141.8708 | 69.81889 | 0.0000 |
| At most 1 \* | 0.779934 | 72.02132 | 47.85613 | 0.0001 |
| At most 2 | 0.479080 | 28.12026 | 29.79707 | 0.0771 |
| At most 3 | 0.226939 | 9.207666 | 15.49471 | 0.3465 |
| At most 4 | 0.058338 | 1.743155 | 3.841466 | 0.1867 |
| *Trace 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* | | | | |
|  | | | | |
| Unrestricted Cointegration Rank Test (Maximum Eigenvalue) | | | | |
| Hypothesized |  | Max-Eigen | 0.05 |  |
| No. of CE(s) | Eigenvalue | Statistic | Critical Value | Prob.\*\* |
| None \* | 0.910059 | 69.84945 | 33.87687 | 0.0000 |
| At most 1 \* | 0.779934 | 43.90106 | 27.58434 | 0.0002 |
| At most 2 | 0.479080 | 18.91260 | 21.13162 | 0.0994 |
| At most 3 | 0.226939 | 7.464511 | 14.26460 | 0.4357 |
| At most 4 | 0.058338 | 1.743155 | 3.841466 | 0.1867 |
| Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level, \* denotes rejection of the hypothesis at the 0.05 level and \*\*MacKinnon-Haug-Michelis (1999) p-values | | | | |

*Source: Author’s Computation from E-views 9.0, (2018)*

The result shows the various variables converge in the long run thereby depicting the existence of long run relationships among the economic variables (private investment in Nigeria (PIVN), government recurrent education expenditure (GRCEXP), government capital education expenditure (CAPEXP), total number of schools in Nigeria (TNOSN) and total number of student’s enrolment in Nigeria (TNSRN)). The long run relationships exist at 5% level of significance according to the Trace test statistics and the Eigenvalue. This implies that there exists seven (7) co-integrating relationship among the variables. Therefore, since there are long run relationships among the variables the study then employs the Error Correction Model to estimate the short run relationships and impact among the economic variables.

*The Error Correction Model*

Since the variables were found to be cointegrated implying that they have long run equilibrium relationships, it is necessary to test for shortrun relationships.

Table 4.5: The Error Correction Model Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| D(PINV(-1)) | 2.820488 | 0.571756 | 4.933031 | 0.0079 |
| D(RECEXP(-1)) | 3.992575 | 1.145200 | 3.486357 | 0.0252 |
| D(CAPEXP(-2)) | 10.318981 | 3.031162 | 3.404299 | 0.0272 |
| D(TNOSN) | 0.019504 | 0.004380 | 4.453070 | 0.0112 |
| D(TNSRN) | 0.000001 | 0.000008 | 0.134372 | 0.8996 |
| ECM(-1) | -0.415186 | 0.082061 | -5.059478 | 0.0072 |

*Source: Author’s Computation from E-views 9.0, (2018)*

From Table 4.5, the ECM parameter is negative (-) and significant which is -0.415186, this shows that 42 percent disequilibrium in the previous period is being corrected to restore equilibrium in the current period. It has been established that the variables are cointegrated and also have short run relationships established from the ECM. Also, the results show that a unit increase in private investment in Nigeria (PIVN) at lag one, government recurrent education expenditure (GRCEXP) at lag one, government capital education expenditure (CAPEXP) at second lag, total number of schools in Nigeria (TNOSN) at current period and total number of student’s enrolment in Nigeria (TNSRN) at current period on the average holding other independent variables constant will lead to 2.820488, 3.992575, 10.318981, 0.019504, and 0.000001 unit increase in private investment in Nigeria (PIVN).

Furthermore, based on the probability, the private investment in Nigeria (PIVN) at lag one, government recurrent education expenditure (GRCEXP) at lag one, government capital education expenditure (CAPEXP) at second lag, total number of schools in Nigeria (TNOSN) at current period were statistically significant in explaining the variation in private investment in Nigeria (PIVN) while the total number of student’s enrolment in Nigeria (TNSRN) at current period was statistically insignificant in explaining the variations in private investment in Nigeria. Finally, this implies that increase in these variables will increase the level of private investment and national output in Nigeria positively and significantly and this finding is in agreement with the a priori expectation of the study and with the studies of Owoeye and Adenuga (2005), Aigbedion (2015) and Aigbedion et. al. (2017) and Aigbedion et. al. (2018) that show that government recurrent education expenditure, government capital education expenditure and total number of schools in Nigeria are positively related to national output in Nigeria.

*Cumulative Sum Test for Model Stability*

The cumulative sum (CUSUM) result shows that the CUSUM falls within the critical region.



*Figure 4.2: CUSUM Result*

This shows that the parameters are stable over the sample period studied, (1986– 2016) as such, there is no structural break in the parameters.

**5. Conclusion and Recommendations**

The co-integration result shows that the variables are co-integrated and there are long run relationships among the economic variables. While Error Correction Model (ECM) results revealed that there is a significant and positive relationship between public education finance and private investment in Nigeria and the result shows that public education finance has positive impact on private investment in Nigeria. The government recurrent education expenditure (GCEX), government capital education expenditure (GREXH) and total number of schools in Nigeria (TNOSN) were statistically significant in explaining the variations in private investment in Nigeria (PIVN). On the other hand, the level of total number of students’ enrolment in Nigeria (TNSRN) was negatively related to private investment in Nigeria and it was statistically insignificant in explaining the variation in private investment in Nigeria. This was against the expectation and though positive but it was statistically insignificant in explaining the variation in economic growth and output in Nigeria.

The following policy recommendations are raised from the study findings and discussions:

1. Government should focus on education reforms and policies that will help to increase the education expenditures especially the capital expenditure on education through the annual budgets to enable the sector provide the needed physical facilities and human resources for effective educational services in Nigeria.
2. Government should design a mechanism for feedback as a mean of evaluation to make sure monies released for education services are used for what they are meant for. This will help to improve the impact of public education finance on private investment in Nigeria.
3. Government should regulate the school enrolment in Nigeria for efficient and effective educational service delivery and reduce the negative impact of total number of students’ enrolment in Nigeria on private investment in Nigeria.

**References**

Adamu, P.A. (2003).” The Impact of Human Capital formation on Economic Development in Nigeria: An Error Correction Approach”, Human Resource Development in Africa: Selected Papers for the Year 2002 Annual Conference, The Nigerian Economic Society (NES), Part Two, 53-77.

Adetula, D., (2017). Investment in Education for the Nigerian Economic Development. *Journal of Internet Banking and Commerce*. 22(1), 1-15.

Aigbedion, I. M.**,** Iyakwari, A. D. B. and Gyang, J. E. (2017): Education Sector and Economic Growth in Nigeria: An Impact Analysis, *International Journal of Advanced Studies in Economics and Public Sector Management*, 5(3).

Aigbedion I. M. (2015). The Impact of Human Capital Development on Economic Growth in Nigeria: 1980-2012. Journal of Research on Humanities and Social Sciences. 5(11), 39-49.

Aigbokhan, B., O. Imahe and M. I. Ailemen (2005). ‘*Education Expenditure and Human Capital Develop­ment in Nigeria: Any Correlation so far*’, Research Paper, Ambrose Alli University, Ekpoma, Nigeria.

Amana, S. A., Aigbedion, M. I., Mmo-Oyeleke, S. A., Onyishi, A. I., (2018). Assessing the Impact of Government Expenditure on Private Investment in Nigeria. *International Journal of Advanced Studies in Business Strategies and Management (IJASBSM).* 6(1), 24-38

Asante, Y. (2000). Determinants of Private Investment Behaviour, AERC Research Paper No. 100, Nairobi: AERC.

Bakare, A. S. (2011). The Determinants of Private Domestic Investment in Nigeria. *Far East Journal of Psychology and Business, 4* (2),

Borode, M. (2006).” Cost Benefit Analysis of Education.” In: Babalola, Ayeni, Adedeji, Suleiman & Arukewuyo (Eds) *Educational* *Management: Thoughts and Practice.* Ibadan: Codat Publications.

Fakiyesi, O. M. (2008). The performance of the Nigerian Financial Sector Since 1986. In: Ben A. Aigbokhan, ed: Rekindling Investment for Economic Development in Nigeria. The Nigerian Economic Society, Ibadan, 127-144.

Fowowe, B. (2011). ‘Financial Sector Reforms and Private Investment in sub-Saharan African Countries ‘‘. Journal of Economic Development 79, 36(3).

Frimpong, J.M and Marbuah.G. (2010). The Determinants of Private Sector Investment in Ghana: An ARDL Approach. European Journal of Social Sciences. 15(2).

Ibadin, V.O. (2004). ‘Economics and Financing of Education,’ In: Nwagwu, Ijeoma and Nwagwu (Ed) *Organisation and* *Administration of Education: Perspective and Practices*.

Lesotlho, P. (2006). An Investigation of the Determinants of Private Investment: The Case of Botswana. Being a Mini-thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Masters (Structured) in Economics, University of the Western Cape.

Luintel, K.B and Mavrotas, G. (2005), ‘Examining Private Investment Heterogeneity ‘‘. Discussion Paper No 2005/11 for World Institute for Development Economic Research (WIDER).

Marimuthu, M. Arokiasamy L. and Ismail M. (2009) “Human Capital Development and Its Impact on Firm’s Performance: Evidence from Developmental Economics,” in The Journal of International Social Research, 2-8

National Bureau of statistics (2017) Annual Statistics Report of the National Bureau of Statistics in Nigeria.

Nigerian National Policy on Education, (2004). Federal Ministry of Education, Abuja, Abuja.

Obaji, C.W. (2006) “Reforming the Nigeria Educational System” Address at the 15th Convocation Lecture, Olabisi Onabanjo University.

Olagboye, A. A. (2004). *Introduction to Educational Management in Nigeria*. Ibadan: Daily Graphics (Nigeria Limited).

Omotor, D. G. (2004). An Analysis of Federal Government Expenditure in the Education Sector of Nigeria: Implications for National Development. *Journal of Social Sciences*, 105-110.

Owoeye and Adenuga (2005). Human Capital and Economic Development: An Empirical Analysis of A Developing Economy (1970 – 2000) A Working Paper. University of Ado-Ekiti, Nigeria *http//Paper.ssrn.com/so13/papers.cfm?abstract-id=726748* (accessed February 10, 2010)

Pesaran, H.M.Y. Shin R.J. Smith (2001): “Bounds Testing Approaches to the Analysis of Long-run Relationships”. *Journal of Applied Economics, 16,289-326.*

Ribeiro, M. B. (2001): An Econometric Analysis of Private-Sector Investment in Brazil, CEPAL Review 74, 153-166.

Solow, R. M. (1994). "Perspectives on Growth Theory." *Journal of Economic Perspectives*, 8(1): 45-54.

Thorbecke, E. (2003), “The Impact of Public Education Expenditure on Human Capital, Growth, and Poverty in Tanzania and Zambia: A General Equilibrium Approach”*, Journal of Policy Modelling,* 25(8), 701-725.

Udin, M., Chowburry, M. and Udin, N. S (2015) Effect of Public Investment on Economic Growth in Bangladesh: An Econometric Analysis. *International Journal of Developing and Emerging Economies,* 3(2) 72-97

Ukeje, E. U. (2002). ‘Towards Accelerated Industrial Crop Production: Problems and Prospects’ CBN Bullion, July/ Sept 2002, 26(3):1-2.

Uwatt, B.U. (2003) Human Resource Development and Economic Growth in Nigeria, 1960- 2000 *Human Resource Development in Africa.* Selected Papers for 2002 NES Annual Conference, Nigerian Economic Society, Ibadan, 53-78

Yesufu, T. M. (2000), “The Human Factor in National Development in Nigeria”, Spectrum Books, Ibadan.



Oil Price Fluctuation and Exchange Rate Movement in Nigeria: 1980-2016

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**Abstract**

*This study is carried out to empirically examine oil price shocks and exchange rate movement in Nigeria. Three variables are used in this study which are exchange rate (EXR), oil price (OP) and oil export (OE). The variables were subjected to unit root test and they were all stationary at first difference I(1). Since the Variables were not all stationary at level but at the same order of I(1) the Johansen cointegration test was used to test for cointegration among the variables. Using the Johansen test, the variables were found to be cointegrated at 5% level of significance. Vector Auto regressive Model was used to determine the short-run relationship between the variables and the forth lag was selected based on the lag selection criterion. A Forcast Error Variance Decomposition (FEVD) was obtained using the cholesky decomposition of the VAR residual. The result obtained showed the proportion of the variations in exchange rate , oil price and oil export attributed to their respective lag values. Causality test indicated that there is bi causality between exchange rate and oil price. This means that oil price Granger cause exchange rate and exchange rate Granger cause oil price. Based on the findings the recommendations made include; that the government should* ***d****iversify the economy to reduce over-reliance on oil revenue. Diversification of the economy will reduce the vulnerability of the domestic economy towards adverse oil price shocks.*

**Keywords:** Fluctuation, exchange, Growth, price, movement, Rate

**JEL** **Codes**: G24

**1. Introduction**

Analysis of the impact of symmetric and asymmetric shocks occasioned by exchange rate and oil price variability on economic growth has been a major preoccupation of both academics and policy makers for some decades now (Mork, 2008). On the one hand, it has been recognized in the literature that depreciation of exchange rate tends to expand exports and reduce imports, while the appreciation of exchange rate would discourage exports and encourage imports *(*Bartleet and Grounder 2010). Thus, exchange rate depreciation leads to income transfer from importing countries to exporting countries through a shift in the terms of trade, and this affects the economic growth of both importing and exporting nations. On the other hand, there is perception that oil price spikes have a serious positive effect on the economies of oil exporting countries (Blanchard and Gali, 2007). While Greenspan (2004) noted that the impact of oil prices alone in modern market-based economies is difficult to infer in a way in which policy is automatically obvious, Omolola (2017) argued that higher oil prices promote economic growth for oil exporting countries, generate more foreign earnings and enhance foreign reserve, which eventually lead to monetary and financial stability. It will also lead to lower interest rates and augment domestic investment. The Nigerian oil and gas sector plays a very dominant role in the nation’s economy with oil receipts accounting for 82.1%, 83% and about 90% of the nation’s foreign exchange earnings in 1974, 2008 and 2010 respectively (Ihua,2013). As at 2012, 88.3% of foreign exchange earnings was attributed to oil industry and in 2016 it stood at 87 % (Omolola 2017). This is an economically precarious situation as confirmed by Oriakhi and Osaze (2013). The over reliance on this wasting resource over the years, has bedevilled Nigeria’s economy as a mono-product economy with notable structural difficulties for the economy. It is worth noting that prior to 1956 when Crude Oil was discovered in commercial quantities, the mainstay of the Nigerian economy comprised of agricultural commodities such as palm oil, rubber, cotton, groundnut, cocoa etc. Since the discovery of oil, Nigerian’s reliance on income from oil and Gas has further been buoyed by an almost consistent upward movement in the prices of crude oil reaching about $147 per barrel in 2008, before averaging $90 per barrel in 2010 and low at $60 per barrel in 2016 (Oriakhi and Osaze, 2013, Omolola, 2017). Volatility in oil prices was defined by Englama et al. (2010) as the rate of change in price over a given period. Volatility may as well be expressed as a percentage and computed as the annualized standard deviation of the percentage change in the daily price. By implication, the larger the magnitude and frequency of the change over time, the higher the incidence of volatility.

Apere and Ijomah (2013) succintly captured the nature of oil volatility as follows, ‘price of oil oscillated between $17 and $26 at different times in 2002 hovered around $53 per barrel by October 2004 and moved further to $55 in 2005. They added that by July 2008, the price of oil rocketed to an all time record of $147 per barrel and thereafter, a sharp drop to US $46 a barrel and this is unending’. In 2015 and 2016 oil price averaged at $50 per barrel and $60 per barrel respectively (Omolola, 2017). In an attempt to situate the oscillation in oil price, the Organisation of Petroleum Exporting Countries (OPEC) attributed the current global crude oil price volatility to continued uncertainty, stemming from the slow pace of global economic growth, continued Eurozone debt crises, high unemployment in advanced economies and the risk of inflation in developing countries (*Oriakhi and Iyoha, 2013*).

There are severe implications of oil price fluctuation with regards to fall in oil price for the Nigerian economy given the current, wide swings in petroleum product prices in the international oil market. Oil price volatility are predominantly defined with respect to price fluctuations resulting from changes in either the demand or supply side of the international oil market (Hamilton, 1983). These changes have been traditionally traced to supply side disruptions such as OPEC supply quotas, political upheavals in the oil-rich Middle East and activities of militant groups in the Niger Delta region of Nigeria. The shocks could be positive (a rise) or negative (a fall). Two issues are identified regarding the shocks; first is the magnitude of the price increase which can be quantified in absolute terms or as percentage changes, second is the timing of the shock, that is, the speed and persistence of the price increase.

Going by the foregoing, four oil shocks can be observed in Nigeria. Each of the shocks had connections with some movements in key macroeconomic variables in Nigeria. For instance, the 1973-74, 1979-80, and 2003-2006 periods were associated with price increases while the oil market collapse of 1986 is an episode of price decrease. During the first oil shock in Nigeria (1973-74), the value of Nigeria’s export measured in US dollars rose by about 600% with the terms of trade rising from 18.9 in 1972 to 65.3 by 1974. Government revenue which stood at 8 per cent of GDP in 1972 rose to about 20 per cent in 1975. This resulted in increased government expenditure owing largely from the need to monetize the crude oil receipts. Investment was largely in favour of education, public health, transport, and import substituting industries (Nnanna and Masha, 2003).

Despite this perceived benefit of oil price change, the macroeconomic environment in Nigeria during the booms was undesirable. For instance inflation was mostly double digit in the 1970s; money supply grew steeply, while huge fiscal deficits were also recorded. A plausible explanation for the dismal performance of the indicators is the inefficient management of crude oil receipts by the government. It has been observed that there were weak institutions which were ill-equipped to conceive and implement major investment projects with the proceeds of the windfall.

Analysis of the impact of asymmetric shocks occasioned by exchange rate and oil price variability on economic growth has been a major preoccupation of both academics and policy makers for some decades now. When crude oil prices are low, occasioned by factors such as low demand, seasonality factors, excess supply, Nigeria experiences unfavorable terms of trade evidenced by budget deficit and slow economic growth (Englama and Omotunde, 2010). An example was a drop in the revenue from oil exports during the global financial crisis in 2009. According to OPEC statistical bulletin (2010/2011), oil export revenue dropped from US$74,033 million in 2008 to US$43,623 million in 2009 and the naira depreciated to N148.902 in 2009 from N118.546 in 2008. Given the above mentioned scenarios, this study is poised to examine the impact of oil volatility on exchange rate movement in the Nigerian economy. The period under consideration is from 1980- 2016 based on time series annual data and this forms the scope of the study. The scope is restricted to the above mentioned period due to data availability especially data on oil export revenue and also to examine recent trends and issues on oil price.

2. Literature Review and Theoretical Framework

Over the past twenty years, dozens of scholars have explored the relationships between oil volatility and the macroeconomic performance of national economies. Different methods of analysis have yielded different results, sometimes sharply different, sometimes modestly.

The empirical literature on the macroeconomic impacts of petroleum product pricing evolved as the new state of the oil market revealed itself gradually after 1973. One of the initial beliefs following the 1973-74 price shock was that the new, higher price of oil might be a permanent feature of a changed natural resource regime. Accordingly, one recurrent theme was the aggregate economy’s response to a sudden, permanent price shock. How would an economy adjust to the new circumstances? This assumption underlies Rasche and Tatom’s (1977, 1981) application of the potential GNP concept to the oil price shock problem and continues as late as the work of Bruno and Sachs (1982, 1985) on adjustment to supply shocks.

Analysis of the impact of asymmetric shocks caused by exchange rate and oil price variability on economic growth has been a major concern of both academics and policy makers for a long time now (Aliyu 2009). According to Amano and Norden (1998) many researchers suggest that oil fluctuations has a significant consequence on economic activity and the effect differ for both oil exporting countries and oil importing countries. It benefits the oil exporting countries when the international oil price is high but it poses a problem for oil importing countries. According to Plante (2008), theoretically the immediate effect of positive oil price shocks is the increase in the cost of production for oil importing countries, this is likely to reduce output and the magnitude of this will depends on the demand curve for oil. Higher oil prices lower disposable income which then leads to a decrease in consumption. Once the increase in oil price is believed to be permanent, private investments will decrease. But if the shocks are perceived as transitory, oil is used less in production and the productivity of labor and capital will decline and potential output will fall. Similarly, Patti and Ratti (2007) shows that oil price increases have a greater influence on the economy than a decrease in oil price.

Also, Rickne (2009) posits that political and legal institutions affect the extent to which the real exchange rate of oil exporting countries is affected by international oil price shocks. In a theoretical model succinctly espoused by literature, strong institutions protect real exchange rate from oil price volatility by generating a smooth pattern of fiscal spending over the price cycle. Empirical analysis carried out on 33 oil exporting countries show that countries with high bureaucratic quality, and strong and impartial legal system have real exchange rate that are affected less by oil price.

Also according to Mordi and Adebiyi (2010) the asymmetric effect of oil price changes on economic activity is different for both oil price increase and oil price decrease. Empirical research suggesting that oil price serves as a major determinant of real exchange rate has yielded somewhat puzzling results for oil exporting countries (Rickne, 2009). Korhonen and juurikkala (2007) showed that increasing crude oil prices cause a real exchange rate appreciation in oil exporting countries and this is not shocking, since they earn a significant amount from oil exportation. There is also a significant relationship between real oil prices and real exchange rates for oil importing countries; evidence has been seen for Spain (Camarero and Tamant 2002).

A study carried out on the Russian economy by Spatafora and Stavrev (2003) confirm the sensitivity of Russia’s equilibrium real exchange rate to long run oil prices. Likewise, Suseeva (2010) verified a long run positive relationship between the real oil price and the real bilateral exchange rate against Euro in Russia. Lizardo and Mollick (2010) provided proof that between the year 1970s to 2008, movements in the value of the U.S dollar against major currencies was significantly explained by oil prices. They found that when oil prices increases, currencies of oil importers such as china suffer depreciation. On the other hand, in net-oil exporters such as Canada, Mexico and Russia, increase in oil prices leads to a noteworthy depreciation of the US dollar. But, Akram (2004) finds strong evidence of no linear relationship between oil prices and the Norwegian exchange rates. Using quarterly data from 1974 to 1992 comparing the United States of America to four different countries (Germany, United Kingdom, Japan and Canada), Clarida and Gali (1999) estimate the share of exchange rate fluctuations that is due to the different shocks in oil and found that more than 50 precent of the variance of real exchange rate changes over all the horizons was caused by real oil shocks.

Amano and Norden (1998) using data on real effective exchange rates for Germany, Japan and United States of America discovered that real oil price is the most important factor in determining real exchange rates in the long run. In the same manner, if the productivity of tradable relative to non-tradable is larger in other countries, it could lead to the appreciation of the real exchange rate. This is the Balassa-Samuelson hypothesis formulated by Balassa (1964) and Samuelson (1964). According to Coudert (2004), the Balassa-Samuelson effect is the mechanism by which an appreciation of the real exchange rate occurs owing to changes in relative productivity. We use the real oil price as a representation of the terms of trade and examine the influence of oil price fluctuations and productivity differentials on the real exchange rate given that oil price is the main export good driving the terms of trade in oil exporting countries. In practice, the price of the main exported good is often used as an indicator of the terms of trade (Sossounov and Ushakov, 2009).

Using a panel of 16 developing countries, Choudhri and Khan (2004) provided strong evidence of the workings of the Balassa Samuelson effects. Coudert (2004) survey provided evidence that the trend appreciation in the real exchange rate observed in countries of Central and Eastern Europe during the early 2000 stemmed, in fact, from the Balassa effect. The study concluded that even though other factors were just as responsible, the estimated Balassa effect goes some way in explaining the real appreciation. Kutan and Wyzan (2005) using an extended version of the Balassa-Samuelson model finds evidence that changes in oil prices had a significant effect on the real exchange rate during 1996 to 2003 and that the Balassa- Samuelson working through productivity changes may be present though its economic significance may not be large. Cashin et al., (2004) carried out a study on over 50 commodities exporting developing countries and found a long-run relationship between exchange rate and the exported commodity’s price in one third of their sample.

In a recent study, Ozsoz and Akinkunmi (2011) also demonstrated the positive effects of international oil prices on Nigeria’s exchange rate. Using monthly panel of G7 countries, Chen and Chen (2007) investigated the long run relationship between real oil price and real exchange rates and found that real oil price is a dominant cause of real exchange rate movements. Olomola (2006) investigated the impact of oil price shocks on aggregate economic activity in Nigeria using quarterly data from 1970 to 2003. He discovered that contrary to previous empirical findings, oil price shocks do not affect output and inflation in Nigeria significantly. However oil price shocks were found to significantly influence the exchange rate. In Bahrain Johansen co-integration test is used to examine the co-integrating relationship among the real GDP, real effect exchange rate and real oil price of a country. Real GDP of Bahrain is more elastic to changes in international oil prices than real exchange rate (Al-zee, 2011). Research conducted on Vietnam from the period of 1995 to 2009 using the vector autoregressive model (VAR) produce results that suggest that both oil prices and the real effective exchange rates have strong significant impact on economic activity.

Habib and Kalamova (2007) investigated the effect of oil price on the real exchange rate of three countries namely; Norway, Saudi Arabia and Russia. In case of Russia, a positive long run relationship was found between oil price and exchange rate and no impact of oil price on exchange rate was found for Norway and Saudi Arabia. Aliyu (2009) and Rickne (2009) believe that this is due to lack of strong institutions and total dependency on oil exports. Aliyu (2009) recommends larger divergence of the economy through the investment in top prolific sector to reduce the adverse effect of oil price shocks and the exchange rate volatility.

*Theoretical Framework*

The theoretical framework for this study is the oil speculation as a driver of oil price theory. The role of speculation in driving the price of crude oil has been the object of renewed interest recently. The speculation theory of oil price is adopted as the theoretical framework because it explains the link between oil price and macroeconomic variables. The decades-old debate, between those who argue that market developments can be directly attributed to changes in fundamentals and those who believe that speculators are creating price volatility, is showing no signs of abating. The speculative theory was propounded by Dvir and Rogo (2009), they argue that the real price of oil has gone through three distinct periods. First, from 1970 to about 1985, the price of oil was generally high (in real terms), and was moreover highly persistent and volatile. Then came a much less volatile period, between 1990 and 1999, in which prices were also generally lower and not at all persistent. This long period can be further divided into two sub-periods: before and after 1993, where price volatility is significantly lower after 1993 compared with the years 1970-1985. Finally, from 1999 onwards, there is a recurrence of high persistence and volatility accompanied again by higher prices. Dvir and Rogo (2009) argued that in these periods two forces coincided: first, demand (governed by income) was high and very persistent, i.e it was governed by growth shocks. Second, access to supply was restricted by agents who had the capability and incentive to do so.

The theory is an extension of the classic commodity storage framework. Chambers and Bailey (1996) and Deaton and Laroque (1996) extend the model to allow for autoregressive shocks. We extend it further to explicitly incorporate demand, and to allow for growth shocks.

Time is discrete, indexed by *t*. The market for oil consists of consumers, producers, and risk neutral arbitrageurs. The latter have at their disposal a costly storage technology which may be used to transfer any positive amount of oil from period *t*1 to period *t*. Storage technology is limited by a non-negativity constraint, i.e. the amount stored at any period cannot drop below zero. This implies that intertemporal arbitrage, although potentially portable, cannot always be achieved. In these cases the market is "stocked out". Let *At* denote *oil availability*, the amount of oil that can potentially be consumed at time *t*. This amount has already been extracted from the ground, either in period *t* or at some point in the past, and has not been consumed before period *t*. It is given by

*At* = *Xt-*1 + *Zt;* (2.1)

where *Xt-*1 denotes the stock of oil transferred from period *t* 1 to *t*, and *Zt* denotes the amount of oil that is produced at time *t*. For simplicity, we assume that no oil is lost due to storage. Decisions concerning both variables - how much to store, how much to produce - are assumed to have been made before period *t* began. In period *t* agents decide how to divide *At* between current consumption *Qt* and future consumption, so that demand - the sum of current consumption and the amount stored for the future - must always equal current availability:

**3. Methodology**

*Methods of Data Analysis*

The research will be empirical. The VAR statistical technique will be adopted using the linear model to explore the relationship between oil price and exchange rate in Nigeria. The technique was so adopted because it will also test for the pattern of causality between the variables.

The stationarity test (unit root test) will be carried out first using the Augmented Dickey-Fuller test on each variable to test for stationarity and avoid for spurious regression. If variables are found to be non-stationary, the cointegration test, which is a pre-test for spurious regression will first be carried out. The Johansen’s cointegration test will be used to test for long run relationship between variables. Furthermore, the Augmented Engle-Granger cointegration test will be carried out thus ensuring that the model is fit for use in analyzing the relationship that exist between oil price and exchange rate in Nigeria.

*Specification of the Model*

A model based on the oil speculation theory of oil price determination using Vector Auto Regressive (VAR) model is adopted from the work of Agboluaje and Olaleye, (2013). Conventionally the VAR model is given as;

, µt ~ IID(0,σ2) 3.1

Where,

Yt = Vector of endogenous variables in the system at time t, the current period

α = vector of constant term

Yt-i = Lagged endogenous variables. This captures the effect of the variables in the system as suggested by Sims.

Øi = the matrix of the coefficients of the variables in the system

m = lag length

Ut = the vector of random disturbance error term,

IID = independently and identically distributed error term with zero mean and finite variance.

Instructively, this study employs a three variables VAR model comprising of oil price, exchange rate and oil export. Thus, the VAR models can be specified below.

|  |
| --- |
| 3.2  3.3 |
| 3.4 |

Where,

OP is Oil Price

OE is Oil Export

EXR is Exchange Rate

α0, β0, λ0 and δ0 are constant parameters,

α1 – α3, β1 – β3, λ1 – λ3 are Coefficients to be estimated,

U1t – U3t are the Gaussian white noise that are independently and identically distributed random variable.

*Error Variance Decomposition*

Forecast error variance decomposition (FEVD) is an econometric tool used by many economists in the vector autoregression (VAR). FEVD is used to aid in the interpretation of a vector autoregression (VAR) model once it has been fitted. The variance decomposition indicates the amount of information each variable contributes to the other variables in the autoregression. It determines how much of the forecast error variance of each of the variables can be explained by exogenous shocks to the other variables.

*A prori Expectation*

Basically the VAR model is used for forecasting as pointed out by Greene (2003) stated that VAR can be used for testing empirical relationship between macroeconomic variables especially in financial time series analysis. VAR model is atheoretic and is not usually based on theory (see Greene 2003). Hence we shall allow the data to speak for themselves although it is expected that Oil price and oil export should be positively related this have been established from previous literature and theories e.g Bruno and Sachs (2015).

*Stationarity Test*

To test for stationarity, the unit root method will be used and will take the form of an Autoregressive model (AR (1) process), with each variable regressed on its own lagged value without an intercept and a deterministic trend. To correct for autocorrelation in the error term, the ADF unit root test will be applied. The model used is:

ΔYt= δYt-1 + μt 3.5

δ=ρ-1

Where;

Y represents all the variables under consideration.

δ represents the coefficient of the lagged value of Y.

Δ is the first difference operator.

Yt-i represents the lagged terms included

μt represents pure white noise error term.

The null hypothesis to be tested is such that the variable possess unit root, and as such is non-stationary.

H0 : δ = 0 (ρ = 1) presence of unit root

H0 : δ ≠ 0 (ρ < 1) no unit root

The decision rule will be such that if the absolute ADF statistic is greater than the absolute critical values, the null hypothesis will be rejected.

*Cointegration Equation*

Johansen and Juselius (1990) is employed to determine the number of co-integrating vectors using the methodology with two different test statistics namely the trace test statistic and the maximum Eigen-value test statistic. The trace statistic tests the null hypothesis that the number of divergent co-integrating relationships is less than or equal to ‘*r*’ against the alternative hypothesis of more than ‘*r*’ co-integrating relationships, and is defined as:

 3.6

The maximum likelihood ratio or the maximum Eigen-value statistic, for testing the null hypothesis of at most ‘r’ co-integrating vectors against the alternative hypothesis of ‘r+l ‘co-integrating vectors, is given by:

 3.7

Where  = the Eigen values, T = total number of observations. Johansen argues that, trace and statistics have nonstandard distributions under the null hypothesis, and provides approximate critical values for the statistic, generated by Monte Carlo methods. In a situation where Trace and Maximum Eigen-value statistics yield different results, the results of trace test should be preferred.

*Granger Causality Equation*

The causative test will make use of the technique of Vector Auto-regression (VAR). The equations will be of the form of equation (3.2), (3.3) and (3.4) above

The equations will be used to test for the causal relationship that exists between oil price and exchange rate.

**4. Data Presentation, Analysis and Interpretation**

*Data Presentation*

In economic research and analysis, attempt is usually made to discover and establish existing relationship between the various economic variables involved in a study.

This chapter serves as an attempt to establish the relationship between oil price and exchange rate movement in Nigeria as evident in the economy. This would be done by checking the type of relationships that exist between the oil price, exchange rate and oil export. Vector Auto-regressive analysis was used and the computational device includes E-views.

*Summary Statistics*

The Summary statistics as derived through E-Views 9.0 shows the Mean, Median, Maximum, Minimum, Standard Deviation, Skewness, Kurtoise, Jacque-Bera and Probability of each of the variables as presented below:

Table 4.1: Summary Statistics

|  | EXR | OE | OP |
| --- | --- | --- | --- |
| Mean | 19.64667 | 18.89354 | 2723.733 |
| Median | 12.45000 | 18.13625 | 351.5962 |
| Maximum | 272.80000 | 29.80000 | 14112.17 |
| Minimum | 5.400000 | 10.50000 | 11.35150 |
| Std. Dev. | 17.84840 | 3.881111 | 4549.497 |
| Skewness | 1.629195 | 0.857905 | 1.561169 |
| Kurtosis | 4.537545 | 4.322560 | 3.755973 |
| Jarque-Bera | 16.22643 | 5.866462 | 12.90061 |
| Probability | 0.000300 | 0.053225 | 0.001580 |
| Sum | 589.4000 | 566.8063 | 81711.98 |
| Sum Sq. Dev. | 9238.395 | 436.8276 | 6.00E+08 |
| Observations | 34 | 34 | 34 |

*Sources: Author’s own computation using E-Views Software, Version 9.0*

It was observed from the above summary statistics with reference to the Jarque Bera estimates and probability value that exchange rate and oil price (OP) are not normally distributed due to their low probability values of 0.000300 and 0.001580 respectively which is lower than the probability value of 0.05.

On the other hand it was observed that the probability values for oil export (OE) was normally distributed due to their high probability value of 0.053225 which are higher than the probability of 0.05.

*4.1.3 Trend Analysis*

Graphically, the trend analyses showed that the variables fluctuates at one point or the other during the period under review. This was attributed to the effects of Government policies and forces of demand and supply in the world oil market that would have had attendant effects on some of the variables. These are presented graphically.



*Figure 1.0 Trend Analysis*

Looking at the graphical analysis in Fig. 1, it was observed that the variables fluctuated over the period 1980-2015 which is clearly depicted by the graph flow lines.

*Data Analysis*

*Stationarity Result*

The augmented dickey fuller test was used to test for unit root. All the variables were regressed on trend and intercept to determine if they have trend, it was discovered that exchange rate has only intercept without trend, oil price has no intercept and trend and oil export has intercept and trend, hence the unit root test was conducted based on the component of each time series. The result is presented below:

Table 4.2: Unit Root Stationarity Result

|  |  |  |  |
| --- | --- | --- | --- |
| Time Series | ADF Statistics | Critical Value | Stationary Status |
| EXR | -11.03404 | -3.64634 (1%)  -2.95402 (5%)  -2.61582 (10%) | I(1) |
| OP | -4.783871 | -2.63690 (1%)  -1.95133 (5%)  -1.61075 (10%) | I(1) |
| OE | -9.394201 | -4.262735 1%)  -3.55297 (5%)  -3.20964(10%) | I(1) |

*Source: Author’s Computation*

Table 4.2 shows unit root test carried out on the time series variables used in this study. The Three variables (EXR, OP and OE) underwent unit root test using the Augmented Dickey-Fuller (ADF) test. All three variables were found to be non-stationary at levels but were stationary at first difference I(1).

*Cointegration Result*

Table 4.3 shows cointegration test conducted using Johansen cointegration approach indicating the Eigen Value, Trace Statistics, critical value and probability value. Due to the non-stationarity of time series, the cointegration test was carried out using the Johansen approach.

Table 4.3: Johansen’s Cointegration Result

|  |  |  |  |
| --- | --- | --- | --- |
| Eigen Value | Trace Statistics | 5% Critical Value | P- Value |
| 0.613596 | 45.86032 | 29.79707 | 0.0003 |
| 0.305129 | 17.33419 | 15.49471 | 0.0261 |
| 0.192472 | 6.413319 | 3.841466 | 0.0113 |

*Source: Author’s Computation*

This became necessary to avoid a spurious regression result. Using the Johansen’s test, there were found three cointegrating equations at the 5 per cent level of significance. From table 4. 2 above, the first three equations show the cointegrated equations with their trace statistics of (45.86032, 17.33419 and 6.413319) greater than the 5 per cent critical values (29.79707, 15.49471 and 3.841466). The cointegration result shows that the three variables have long-run equilibrium relationship.

*VAR Results and Error Variance Decomposition*

The Vector Autoregressivie Model estimated is presented in the appendix of this study. From the VAR model, the Variance Error Decomposition is extracted using the cholesky decomposition. The variance decomposition indicates the amount of information each variable contributes to the other variables in the autoregression. It determines how much of the forecast error variance of each of the variables can be explained by exogenous shocks to the other variables.

Table 4. 4 VAR Lag Order Selection Criteria

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Lag | LogL | LR | FPE | AIC | SC | HQ |
| 0 | -253.3626 | NA | 3714.417 | 16.73307 | 17.01062 | 16.82354 |
| 1 | -224.1831 | 48.94625 | 1018.474 | 15.43117 | 16.12503 | 15.65735 |
| 2 | -207.6877 | 24.47710 | 645.3381 | 14.94759 | 16.05777\* | 15.30948 |
| 3 | -201.6403 | 7.802981 | 829.8418 | 15.13809 | 16.66459 | 15.63569 |
| 4 | -182.4543 | 21.04277\* | 482.0080\* | 14.48092\* | 16.42374 | 15.11423\* |
| \* indicates lag order selected by the criterion | | | |  |  |  |
| LR: sequential modified LR test statistic (each test at 5% level) | | | | |  |  |
| FPE: Final prediction error | | |  |  |  |  |
| AIC: Akaike information criterion | | |  |  |  |  |
| SC: Schwarz information criterion | | |  |  |  |  |
| HQ: Hannan-Quinn information criterion | | | |  |  |  |

*Source: Author’s Computation*

Table 4.4 indicate the lag selection criteria, the table shows the various lag selection criteria used to determine the lag length for the VAR model. To carryout VAR analyses on the variables, the fourth lag will be selected since all the lag selection criteria chose the fourth lag except Schwarz information criterion that which chose the second lag.

*Error Variance Decomposition*

Table 4.4 shows variance decomposition of the VAR model, the table indicate how the variance of exchange rate, oil price and oil export were decomposed using cholesky decomposition technique for four period.

Table 4.4 Forecast Error Variance Decomposition

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variance Decomposition of Exchange rate: Period | S.E. | EXR | OP | OE |
| 1 | 3.086407 | 100.0000 | 0.000000 | 0.000000 |
| 2 | 3.176038 | 97.56888 | 0.164560 | 2.266557 |
| 3 | 4.512796 | 91.19246 | 1.987198 | 6.820337 |
| 4 | 4.900877 | 89.82066 | 1.792864 | 8.386472 |

Cholesky Ordering: POV

Cholesky Ordering: INF

Variance Decomposition of UMP:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Period | S.E. | EXR | OP | OE |
| 1 | 0.683284 | 2.860890 | 33.69438 | 63.44473 |
| 2 | 0.728476 | 12.99846 | 29.64740 | 57.35415 |
| 3 | 0.845621 | 30.64609 | 24.24095 | 45.11295 |
| 4 | 0.900727 | 34.06199 | 22.40086 | 43.53715 |
| Cholesky Ordering: UMP | |  |  |  |

*Source: Author’s Computation*

From table 4.4, Variation in exchange rate for the first period is explained only by exchange rate. Variation in exchange rate for the second period is attributed 97.6%, 0.1% and 2.2% variation in exchange rate, oil price and oil export. Variation in exchange rate for the third period is attributed 91.2%, 1.99% and 6.82% variation in exchange rate, oil price and oil export. Variation in exchange rate for the fourth period is attributed 89.8%, 1.79% and 8.39% variation in exchange rate, oil price and oil export.

Variation in oil price for the first period is explained by 16.4% and 83.6% variation in exchange rate and oil price. Variation in oil price for the second period is attributed 25.8%, 72.99% and 1.19% variation in exchange rate, oil price and oil export. Variation in oil price for the third period is attributed 51.8%, 35.8% and 12.4% variation in exchange rate, oil price and oil export. Variation in oil price for the fourth period is attributed 64.9%, 23.9% and 11.3% variation in exchange rate, oil price and oil export.

Variation in oil export for the first period is explained by 2.86%, 33.69% and 63.44% variation in exchange rate, oil price and oil export. Variation in oil export for the second period is attributed 12.998%, 29.65% and 57.35% variation in exchange rate, oil price and oil export. Variation in oil price for the third period is attributed 30.6%, 24.2% and 45.1% variation in exchange rate, oil price and oil export. Variation in oil price for the fourth period is attributed 34.1%, 22.4% and 43.5% variation in exchange rate, oil price and oil export.

*Granger Causality Test*

Table 4.5 is granger causality test it illustrate the direction of causality among the variables under study (exchange rate, oil price and oil export).

Table 4.5 Causality Test

|  |  |  |  |
| --- | --- | --- | --- |
| Null Hypothesis (H0) | Chi-Square | Probability | Decision |
| OP does not cause EXR | 10.51789 | 0.0917 | Reject Ho |
| EXR does not cause OP | 13.74877 | 0.0081 | Reject Ho |
| OE does not cause EXR | 14.90053 | 0.0877 | Reject Ho |
| EXR does not cause OE | 10.60593 | 0.0314 | Reject Ho |
| OP does not cause OE | 4.986681 | 0.2887 | Accept Ho |
| OE does not cause OP | 10.96944 | 0.0269 | Reject Ho |

*Source: Author’s Computation*

From the table 4.5, there is bi causality between exchange rate and oil price. This means that oil price Granger cause exchange rate and exchange rate Granger cause oil price.

There is two way causality between oil export and exchange rate. This means that oil export Granger-cause exchange rate and exchange rate Granger-cause oil export.

There is one way causality between oil export and oil price. The causality flows from oil price to oil export. This means that oil price granger cause oil export.

*Discussion of Result*

From the result interpreted and the findings, oil price influences exchange rate in Nigeria. This result is in line with the work of Apere and Ijomah (2013) who carried out the same research on Nigeria, using VAR model and he concluded that oil price affects exchange rate in Nigeria. Anshasy et al, (2013), and Balke, (2016) all arrived at the same conclusion from their findings. Also oil export causes exchange rate in Nigeria, this result is in line with Blanchard and Gali (2007). Other research such as Darby (2013) found out that oil export have a significant impact on exchange rate in oi exporting countries such as Nigeria.

Furthermore from the exchange rate causes both oil export and oil price. This result is in line with some study such as Chen and Hsu (2012), Bruno and Sachs, (2015) who all concluded that exchange rate causes oil price and oil export.

Finally, oil price causes oil export in Nigeria. The causal relationship that flows from oil price to oil export indicate that oil price pass through to oil export in Nigeria. This result supports that of Englama (2010).

**5. Conclusion**

*Concluding Comments*

From the findings, it is evident that oil price volatility affects exchange rate significantly. Oil is the major source of energy and is essential to the growth of any nation as it affect key macroeconomic variables in Nigeria. This study reveals that there is a linkage between oil price and exchange rate movement vis-à-vis market oil price (OP), oil export (OE) and exchange rate (EXR). The study has provided answers to the research questions raised such as the relationship between oil prices and exchange rate and the causal flow. It is therefore concluded that oil price is a major determinant of changes in key macroeconomic variables in Nigeria.

*Recommendations*

Based on the conclusion drawn and findings in the course of this project particularly the results of the VAR model, it is clear that the development of the Nigerian economy is highly dependent on oil which is no doubt the major source of revenue. The following recommendations could be made. The government should:

i. Diversify the economy to reduce over-reliance on oil revenue. Diversification of the economy will reduce the vulnerability of the domestic economy towards adverse oil price shocks.

ii. Promote oil export since it has a significant impact on exchange rate. Oil export can be promoted in Nigeria by changing the ownership structure of the Nigerian oil industry by allowing the private sector to participate in the downstream sector especially in the construction of refineries

iii. Control monetary instruments such as money supply to control exchange rate movement in the economy. Central Bank should make more stringent punishment for non compliance to the monetary policies by financial institutions. This will help to curtail the nefarious activities of some unscrupulous financial institution operations who trade the welfare of the whole Nigerian populace for a penny.

**References**

Anshasy, A. Bradley, M. & Joutz, F. (2013) Evidence on the role of Oil Prices in Venezuala’s Economic Performance, the 25th Annual North American conferences proceedings of the International Association of Energy Economics. Denver: September 18-24.

Aliyu, N. (2009). An Equlibrium analysis of relative price changes and aggregate inflation,*No 9609, Working papers, Federal Reserve Bank of Dallas*.

Alkesim, B. S. (2004) “Irreversibility, Uncertainty, and Cyclical Investment”, *Quarterly Journal of Economics, 98*, 85–106.

Amano, M. and Norden, L. (1998) “Exchange Rate Stabilization in Developed and Underdeveloped Capital Markets”, *European Central Bank Working Paper* 636.

Apere, O. & Ijomah, E. (2013). Oil Price Fluctuation and the Nigeria’s Economy. OPEC Reviews, 111

Azarmi R. G. (2009). The effect of oil price shock on the Kuwait economy: a VAR approach Working Paper, University of the Kuwait School of Economics.

Bacon, M.R. (1991). The Price of Oil and World Inflation and Recessions, American Economic Review, 72,738-751.

Bartleet, S. & Grounder, S. (2010). Oil Price and Exchange rates, Economic Journal, 93, 576-593.

Balke, Y., 2016. Determinants of Economic Growth and Stagnation in Oil Rich Venezuela. Dutch *Journal of Economics, 3(1): 3-6.*

Blanchard O. and Hachicha A. (2009), Empirical Analysis of Monetary Transmission in Tunisia: What do SVAR Models Tell Us? *1874-9194/09 2009 Bentham Open Access, SDFi Universite Paris-Dauphine, Place Maréchal De Lattre de Tassigny, 75016 Paris, France*

Benchekroun, H. and Gaudet, G. (2003). On the Profitability of Production Perturbation in a dynamic natural resource oligopoly, *Journal of Economics Dynamics and Control, 27, (7), 1237-1252.*

Blanchard, O. and Gali, R. (2007). Oil Price, Commodity Currencies and Growth, *Journal of International Economics, 65, (1), 233-260.*

Bruno, S. & Sachs, V. (2015). The Impact of Oil Prices on GDP in European countries: An empirical investigation based on asymmetric cointegration Energy Policy, 34, 3910-3915.

Balke, Nathan S., Stephen P. A. Brown, and Mine Y¨ucel (1999) “Oil Price Shocks and the U.S. Economy: Where Does the Asymmetry Originate?” *Working paper,* Federal Reserve Bank of Dallas.

Balassa, S. S (1964). Oil price changes and its economic and social reactionary effect: an appraisal. Switz journal of social economics, 4(2): 50-53.

Camarero, A. and Tamaut, M. (2002) “Nominal versus Real Convergence with Respect to EMU Accession – EMU Entry Scenarios for the New Member States”’ *Kyklos 58*, 4, 481-499.

Chen, S.S & Hsu, H. C. (2012). Oil Price and Real Exchange Rate, energy Economics, 29:390-404.

Clauda, J. and Gali.M (1999) "Oil price Volatility and the Macroeconomy", *Journal of Macroeconomics, 18*, 1–26.

Couderf, M. (2004) “Oil price shocks and economic growth: Evidence for New Zealand, 1989-2006”, Paper presented at the New Zealand Association of Economist *Annual Conference,* Christchurch, 27th to 29th June.

Choudhri, C., Kahn, J. (2004). Are oil shocks inflationary? Asymmetric and non-linear specifications versus changes in regime. Journal of money, Credit and banking. 34(2): 540 – 561.

Darby, M., (2013). The Price of Oil and World Inflation and Recession. American Economic Review, 72: 738-751.

Dees. Y. & Eastwoods, K. and Raymond, P. (2007). Commodity Currencies, Journal of International Economics, 60 (1), 133-160

Dvir, N and Rogo, P. (2009). Oil price changes and government revenue effect. Bangladesh Journal of Economics, 3(6): 2-4.

Dufour, K., Gulde, A. M. and Wolf, H. (2006) “Exchange Rate Regimes: Choices and Consequences”(Cambridge, Massachusetts: MIT Press).

Englama, A., Omotunde, O., Ogunleye, T. S & Ismail, F. (2010). Oil Prices and Exchange rate volatility in Nigeria: An empirical investigation. Central Bank of Nigeria (CBN) Economic and financial review 48/3

Eglama, M and Omotunde, L. (2010). The Impact of oil Price Shocks: Evidence from the industries of siz OECD countries. Energy Economics, 30 (6), 3095-3108.

Eglama, M. (2010) “The Case for Flexible Exchange Rates” In *Essays of Positive Economics*, ed. by Milton Friedman (Chicago: University of Chicago Press).

Greene, W. H. (2003). Econometric analysis, 5th ed., Prentice Hall: Upper Saddle River.

Greenspan, Alan (2004) cited in “Oil and the Macroeconomy Since the 1970s” by Barsky, R. and L. Kilian (2004), *http://.www.cepr.org/pubs/dps/DP4496.asp*

Hamilton, J. D. (1983). Oil and the Macro-Economy since world war II, Journal of Political Economy, 91, 228-248

Hamilton, J., 2013. Oil and the macro economy since world war ii. Journal of political economy, 96: 593-617.

Ihua, N., (2009). Oil and growth; the nexus: A case study of nigeria. National Economic Journal of Nigeria, 4(2): 6-9, 14-16.

Jin, G. (2008) “The Impact of Oil Price Shock and Exchange Rate Volatility on Economic Growth: A Comparative Analysis for Russia Japan and China”, *Research Journal of International Studies,* Issue 8, pp. 98-111.

Korhoner, J. and Jounkkak, S. (2007) “Exchange Rate Regimes: Is the Bipolar View Correct”? *Journal of Economic Perspectives* 15, 2, 3–24.

Krautkreamer, W. (1998). The Impact of oil Price Shocks: Evidence from the industries of siz OECD countries. Energy Economics, 30 (6), 3095-3108.

Kariual, P. (2012). Effect of changes in international oil prices on economies of African countries. Journal of African economies, 3(15): 22-27.

Kutan, C. E. and Wyzan, R.G. (2005). The effect of oil price shock on the Kuwait economy: a VAR approach working paper, University of the Kuwait school of economics.

Lizardo, M. and Molluak, A. (2010) “An Estimate of the Effect of Common Currencies on Trade and Income”, *Quarterly Journal of Economics* 117, 437–66.

Majidi, M. (2006). Oil shocks and the macro-economy when price go up and down: An extension of Hamilton’s results, Journal of Political Economy, 97; 740-744.

Mork, K. A. (2008). Macro-economic Response to Oil price Increases and Decreases in Seven OECD countries Energy Journal 15:19-35.

McKillop, A. (2004) “Oil Prices, Economic Growth and World Oil Demand”, *Middle East Economic Survey,* VOL. XLVII No 35.

Mordi, P., and Adetiyi, O. (2006). Oil price Shocks and Aggregate Economic Activity in Nigeria. African economic and business review, 4(2): 40-45.

Mork, K., 2004. Oil and the Macro Economy When Prices go up and Down: An extension of hamilton‘s results. Journal of political economy, 97(2): 740-744.

Nnanna, D. E. & Masha, R. A (2003). The Impact of tax reform on federal revenue generation in Nigeria. ESUT Journal of Accountancy Vol. 5 No.2 December, 2015.

Omolola, E. (2009). The Nigerian Economy and Its growth Prospects, National Economic Journal of Nigeria, 7(3), 33-39.

Omolola, E. (2006). The Nigerian economy and its growth prospects, national economic journal of Nigeria, 7(3), 33-39.

Oriakhi, R. and Osaze, A. (2013). An examination of oil prices and its changes on the nigerian economic growth. Journal on Welfare economics, 4(2): 25-28.

Oriakhi, D. E. & Iyoha, D. O. (2013). Oil Price volatility and Its consequences on the growth of the Nigeria’s economy: an examination (1970-2010), Asian Economic and Financial Review, 3(5), 683-702.

Patti, J.D. and Ratti, A. (2007). Oil and the macro-economy since world war II, journal of Political Economy, 91, 228-248.

Pindyck, J. (1999). Oil price volatility and the macro economy. Journal of macroeconomics, 18(2): 1-26.

Plante, H.C. (2008). Oil price and real exchange rate, energy economics, 29:390-404

Rasche, H. & Tatoms, Q. (1977). Oil Price changes and Its Economic and Social Reactionary effect, an appraisal. Switz Journal of Social Economics, 4(2), 50-53.

Rasche, H. & Tatoms, Q. (1981). Oil price changes and its Economic and social reactionary effect, an appraisal. Switz journal of social economics, 4(2), 50-53.

Rickne, K. (2009). Oil price changes and volatility; a correlation analysis on the economy of China. Scholarly writers publications, 15(4): 44- 49.

Samuelson, P. (1964). Innovation and economic growth, American economic review, 72, 738-751

Stevens, P. (2005). Oil Price changes and government revenue effect, Bangladesh Journal of Economics. Volume 4, pp25.60.

Spafafore, C. and Stavrev, V. (2003). Using vector auto regression to test for effects of oil price changes on economic growth. International Journal of economics, 15(2): 144-147.

Suaserva, M (2010). The Price of Oil and World Inflation and Recession. Amercian economic review , 72:738-751.

Sosounour, M.R and Ashakov, R. (2009). The Price of Oil and World Inflation and Recessions, American economic review, 72, 738-751.

Zhang, R. and Duo, L. (2010). The impact of oil price shocks: evidence from the industries of size OECD countries. Energy economics, 30(6), 3095 – 3108.



**An Appraisal of Stock Market Prices Volatility in an Era of Democracy in Nigeria: 1999 – 2017**

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**Abstract**

*This study appraised stock market prices volatility in an era of democracy in Nigeria. It examined the degree and persistence of volatility for the period of July 1999 to December 2017using GARCH (1,1) model. The result of the empirical analysis revealed that the components of ARCH and GARCH terms is close to one and greater than 0.5 which means that stock market prices has high level of volatility in Nigeria for the period before democracy. Therefore, the sum of square error term and conditional variance revealed that stock price volatility exist during the period under review. In the same vein, interest rate, inflation and exchange rate as appeared in the model represent an outside shock that influence the volatility in stock market price in Nigeria.*

**Keywords:** Stock Prices, Volatility, Democracy, Arch, Garch

**JEL** **Codes**: G24

**1. Introduction**

Stock market serves as a channel through which savings of the surplus earners are mobilized and efficiently allocated to achieve economic growth, the allocation of such surplus fund helps in enhancing capacity utilization and promoting productive activities in the economy. The banking system and the stock exchange works together to achieve the macroeconomic objective of the economy, the bank being the custodian of money help through the stock exchange to pool large and long term capital resources through issuing of shares and stocks by industries in dire need of finance for expansion purposes. Thus, the overall development of the economy is a function of how well the stock market performs (Adeniji, 2018).

Stock market volatility measures the variation in prices of financial asset over time. It basically relates with the dispersion of price changes which is highly important in the determination of returns on investment (Hongyu and Zhichao, 2006) as well as guide the investors in their decision making process since they are not only interested in returns, but also in the uncertainty of such returns (Osazevbaru, 2014). Efforts toward financial sector reforms would be an exercise in futility if volatility of stock market is not addressed. A volatile stock market weakens consumer confidence and drives down consumer spending (Porteba, 2000).

Political system significantly influences financial markets. Stock markets generally respond to new information regarding political decisions that may affect domestic and foreign policy. As such, market efficiency requires that stock markets absorb news and political events into stock prices in anticipation of outcomes of political uncertainty which occur often depending on the political system in operation in the country. Hence positive stock prices volatility is expected following the resolution of political uncertainty. In contrast, if the outcome of the political uncertainty does not allow investors to immediately measure the negative impact on the stock market, then the political outcome constitutes an uncertainty inducing surprise (Konzelmann, Wilkinson, Fovargue-Davies & Sankey, 2010).

One of the major problems associated with price volatility is the lack of evidence of their origins. The literature follows two main streams: the first stream in the literature claims that price volatility primarily originate in news announcements. This stream is represented by Lee and Mykland (2008) or Lahaye, Laurent and Neely (2009), where the authors claim that the main source of price volatility are corporate statements or macroeconomic news announcements. In addition, many authors, e.g., Hanousek, Kocenda and Kutan (2008), claim that news announcements cannot be perceived absolutely, but rather only relatively with respect to market expectations. The second stream, on the other hand, states that the main source of price volatility is the lack of liquidity on either the bid or the ask side. Lefevre, Grunberg and Bouchaud (2008) and Bouchaud, Kockelkoren and Potters (2004), two representative works, study the so-called excess liquidity and its impact on the formation of price volatility. In addition, this stream opposes the explanation that the primary source of price volatility is revealed news. From these two streams, it cannot be far fetch that, stock prices volatility is a product of uncertainty or political instability flowing from political system through the economic system and then affecting the stock market.

Political system in Nigeria evolved over three eras; the pre-colonial era, colonial era, and the era since independence. In the first years after independence, Nigeria struggled to make the parliamentary style of government work, and then settled into military dictatorships by 1966, interspersed with attempts' to establish a civilian-led democracy. The journey to the present democratic experience in Nigeria commenced on May 29, 1999, when the military government returned power to civilian administration. The agitation for the exit of the military was embarked upon because of the popular belief among the stakeholders in the economy that, democracy, among other things, enhances overall economic performance. Supporters of democracy also argue that the motivation of citizens to work and invest, the effective allocation of resources in the market place, and profit-maximizing private activity can all be maintained in a climate of liberty, free-flowing information and secured control of property (North, 1990). Democratic structures benefit countries in numerous ways. They promote rule of law, open society, freedom of choice, and stable politics, which discourages corruption and extremist policies.

Hence, given the enormous benefits of democracy political system stated above, it is important to answer a question on the extent of the degree and persistence of stock prices volatility in the Nigerian stock market in an era of democracy. Following this introduction, the rest of the paper is structured as follows: section two reviews literature related to the study, section three presents the methodology of the study, while section four presents analysis and interpretation and section five concludes the paper.

**2. Literature Review**

The issue of stock market prices volatility has been examined by authors both in Nigerian context and as well as in other countries.

Political system and the economy are intricately linked with each other and can be said to have significant impact on each other. Political system is full of uncertainty while the economy in its unit or aggregate has its own up and down from which volatility can be generated. Karolyi, (2006) maintained that, in the time of political and civil unrests, it is not uncommon for stock markets to experience increased levels of volatility as the occurrences of major political events signal potential shift in policy which may cause market-wide valuation changes. Hence, the question of whether political factors affect the economy has been an important area of analysis (Nordhaus, 1975; Soh, 1986; Milas, 2000).

Alexakis and Petrakis (1991) conduct a broader study on the Greek market and document a link between the behavior of stock market index and political factors. Using an event-study analysis, it has been found that when a country is undergoing a change in its political structure, stock prices react with a great deal of uncertainty and adjust negatively during the unrests. However, the market recovers after the initial shocks are over.

Using the Hang Seng index in Hong Kong, Chan and Wei (1996) show that favorable political news produces positive returns whereas unfavorable news causes negative returns. They also note that certain type of stocks and sectors are more vulnerable to political risk than the others. Specifically, their results indicate that political news has an impact on stock market volatility, mainly through the blue-chip (and not the red-chip China-related) shares.

Furthermore, Perotti and Oijen (2001) conduct a study in a number of emerging markets to determine whether political shocks have any effect on stock markets; their findings show drastic changes in excess returns when political risk increased or decreased, indicating political risk is an important pricing factor in the cross-section of stock returns. Jackson (2008) looks at the world economy after 9/11, one of the biggest events in the 21st century, and shows that although the attack took place in the U.S., markets across the world were affected. As the U.S. is a very large part of the world economy, it is not surprising to observe that the effects of 9/11 attack be far greater than other events that were analyzed in prior studies. Chesney, Reshetarb & Karamana, (2011) further investigate the effects of 77 terrorist attacks that occurred in 25 countries on the world economy and confirm that majority of the events had a negative effect on financial markets.

Lobo (1999) examines markets during the U.S. midterm elections in 1998 after a political scandal had been revealed and found there was a great deal of insecurity amongst investors. Brooks, Davidson & Faff (1997) conducted a similar study in South Africa after a significant political change and found comparable results indicating that stock market volatility is closely linked to political instability. Leon, Nicholls & Sergeant, (2000) monitored volatility in Trinidad and Tobago during a period of political uncertainty and show a significant "calming of the markets" once political stability was achieved.

Furthermore, recent researches have examined market efficiency by examining stock market responses to uncertain political events. Most empirical investigations have focused on tracking financial market movements in relation to elections (Gemmill, 1992; Gwilym and Buckle, 1994). Major studies supported the presidential election cycles, in which US stock markets make larger gains in the third and fourth year of a presidential term, while average returns in second year were found to be negative (Huang, 1985; Foerster, 1994; Stoken, 1994; Foerster and Schmitz, 1997).

Other studies have focused on the stock market preference: Academic research on such subject reported that small stock perform better under Democrats relative to Republicans. (Reilly and Luksetich, 1980; Santa-Clara and Vallcanov, 2003).

Osazevbaru (2014) empirically tested for the presence or otherwise of volatility clustering in the Nigerian stock market. Using time series data of share prices for the period 1995 to 2009, the Autoregressive Conditional Heteroscedasticity (ARCH) model and Generalized Autoregressive Conditional Heteroscedasticity (GARCH) model were estimated. The result revealed high level of volatility of 1.1783 and quite high. It is suggested that aggressive trading on a wide range of securities be encouraged as this will increase market depth and hence reduce volatility.

Given the above reviewed literature, it is evident that studies on stock market volatility is still very scanty in Nigeria and few that are available did not take into consideration the period of democratic era which is the gap this study want to fill.

**3. Methodology**

The estimation of stock market prices volatility remain one of the main concerns of financial experts, academics and policy makers. Thus, financial economists finds satisfactory mathematical models to estimate volatility. The pioneer study in this field is credited to the study of Engle (1982) who offered modeling conditional volatility by using Autoregressive Conditional Heteroscedasticity (ARCH) process; which is in simple words a function of lagged squared residuals, and the general form of the model is:

Where is mean, is conditional volatility and is white noise representing residuals of time series.

However, to overcome the weaknesses that were found while applying ARCH models, especially the one related to the inability to exhibit volatility clustering. Another model (3.2) was introduced by Bollerslev (1986) study to modify the version of ARCH models, which is symmetric Generalized Autoregressive Conditional Heteroscedasticity (GARCH) model; that synchronized both lagged squared residuals and lagged variances. In this way GARCH model is allowed to be dependent on both recent variance of itself side by side with past shocks, so at the end it will provide us with volatility clustering. In general the GARCH (p, q) model is presented in the following formula:

Where i =0,1,2,3,… p, conditional volatility, ,are non-negative constants with it should be near to unity for an accurate model, is residuals and it is lagged conditional volatility. And the last part of the formula is the main difference in applying both ARCH and GARCH models. Hence, and are ARCH components and and are GARCH components. In addition, both ARCH and GARCH models depend on a major assumption that is; all of the shock effects on volatility have a symmetric distribution.

However, the empirical results of studies applying ARCH/GARCH model in different countries found that this assumption does not hold true for many stock markets in the world due to the special characteristics for each market. Hence, even though GARCH model did capture many important issues connected to the financial time series, but on the other hand failed to detect other volatility properties for example leverage effect and heavy tailedness too. Thus, modified models were presented by multiple researchers depending on nonlinear distribution so that it can take advantage from the well-known fact which states that; negative shocks have stronger effect on increasing volatility materially in comparison to the effect of positive shocks on volatility in the same magnitude. That all-in return led to build asymmetric GARCH models that can capture the extent of availability for asymmetric distribution, parameter restrictions and leverage effect of stock return. The issue of asymmetric condition was firstly proposed by Black (1976), then across time there have been many empirical studies that provided supporting evidence for Black proposal such as Exponential GARCH (EGARCH) by Nelson (1991), GJR GARCH by Glosten, Jagannathan & Runkle (1993), Threshold GARCH by Zakoian (1994), and many other models were added to GARCH models family to estimate volatility more efficiently.

In accordance to the aforementioned, this study adopts in particular employing EGARCH model due to the ability of this model to show greater impact of volatility by large shocks, also this will be side by side with the classical models of ARCH/GARCH as well, to test and measure both asymmetric and symmetric distribution respectively and to find out the main characteristics of stock prices volatility. The formula of EGARCH can be expressed as following:

Regarding the EGARCH formula it is easy to figure out its added advantages, in that; firstly, the parameters are guaranteed to be positive since the model uses the log of the variances. And secondly, no restrictions on the parameters included in the formula which are , β, γ. Moreover, to make sure that the stationery assumption still holds β must be positive and less than 1, in addition, the value of gamma (γ) is the indicator of leverage effect (asymmetric) and must be both negative and significant.

Consequently, to accomplish the objective of this study our methodology depends mainly on applying the most widely used nonlinear models for specifying volatility; which are ARCH/GARCH models to appraise the stock prices volatility.

Therefore, the first stage in the analysis process is to investigate the presence of ARCH effect in the data by generating regression residuals through applying least square method. Afterwards, next step is to test the availability of volatility clustering by using GARCH.

**4. Data Analysis and Interpretation**

*Unit Root Test*

The stationarity properties of the time series used for analysis are tested using the Augmented Dickey Fuller (ADF) model and the Philips-Perron (PP) model. The results are presented and interpreted in table 4.1:

Table 4.1: Unit Root Test Result for the era of Democracy

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | Augmented Dickey-Fuller (ADF) Test | | | Phillip-Perron (PP) Test | | |
| Level | Ist Differecne | Status | Level | 1stDifferecne | Status |
| LASI | -1.8777 | -11.49027\* | I(1) | -1.8413 | -11.61457\* | 1(1) |
| LSMC | -1.6076 | -10.83300 | 1(1) | -1.4887 | -10.8579\* | 1(1) |
| INF | -1.5308 | -11.32955\* | 1(1) | -1.3961 | -11.3210\* | 1(1) |
| INT | -1.7334 | -11.84802 | I(1) | -1.0509 | -11.8228\* | 1(1) |
| EXR | -1.1204 | 7.855330 | 1(1) | -1.0398 | -7.4833\* | 1(1) |

*Source: Author’s Computation from E-views Output 10.0; Notes: \* indicates significant at one percent or a rejection of the null hypothesis of no unit root at the one percent level \*\* indicates significant at five percent or a rejection of the null hypothesis of no unit root at the five percent level. Number of lags was selected using the AIC criterion.*

The result presented in table 4.1 revealed that the variables were not stationary at level meaning that the null hypothesis of unit root cannot be rejected since the asymptotic critical values are less than the calculated values of ADF and PP. After all the variables were transformed to their first difference, the null hypotheses of unit root were rejected and the variables became stationary. Therefore, they are said to maintain stationarity at an integration of order one, I (1).

*Lag Length Selection Test*

The Schwarz information criterion (SC) is used to select the optimal lag length considering the smaller value of information criterion. This is presented in table 4.2:

Table 4.2: VAR Lag Order Selection Criteria

| Lag | LogL | LR | FPE | AIC | SC | HQ |
| --- | --- | --- | --- | --- | --- | --- |
| 0 | -4381.98 | NA | 1619388 | 28.48 | 28.54 | 28.51 |
| 1 | -1247.97 | 6145.92 | 0.002765 | .8.29 | 8.66 | 8.44 |
| 2 | -1212.88 | 67.66 | 0.002590 | 8.23 | 8.89 | 8.49 |
| 3 | -1150.69 | 117.91 | 0.002035 | 7.99 | 8.96 | 8.37 |
| 4 | -1098.42 | 97.41 | 0.001706 | 7.84 | 9.08 | 8.32\* |
| 5 | -1077.61 | 38.11 | 0.001754 | 7.84 | 9.41 | 8.47 |
| 6 | -1045.63 | 57.70 | 0.001678\* | 7.79 | 9.67 | 8.54 |
| 7 | -1022.60 | 40.50\* | 0.001704 | 7.80 | 9.98 | 8.68 |
| 8 | -100438 | 31.59 | 0.001785 | 7.85 | 10.33 | 8.84 |

*Source: Author’s Computation from E-views Output 10.0*

*Cointegration Test*

Having established that the variables are integrated of the same order, we proceed to testing for cointegration. The Johansen-Juselius procedure was applied in determining the cointegrating rank of the system and the number of common stochastic trends driving the entire system. We report the trace and maximum Eigen­-value statistics and its critical values at 5% in the tables 4.3.

Table 4.3: Cointegration result Before Democracy

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Unrestricted Cointegration Rank Test (Trace) | | | | | Unrestricted Cointegration Rank Test (Max-Eigen) | | |
| Hypothesizd  No. of CE(s) | Eigen-vale | | Trace Statistic | 0.05 Critical Value | Eigen-Value | Maxi-Eigen Statistic | 0.05 Critical Value |
| Hypothesizd  No. of CE(s) | | Eigen-vale | Trace Statistic | 0.05 Critical Value | Eigen-Value | Maxi-Eigen Statistic | 0.05 Critical Value |
| None \* | | 0.23 | 84.98 | 69.81 | 0.23 | 37.77 | 33.87 |
| At most 1\* | | 0.17 | 47.21 | 47.85 | 0.17 | 26.18 | 27.58 |
| At most 2\* | | 0.08 | 21.02 | 29.79 | 0.08 | 12.64 | 21.13 |
| At most 3\* | | 0.04 | 8.38 | 15.49 | 0.04 | 6.77 | 14.26 |
| At most 4\* | | 0.01 | 1.61 | 3.84 | 0.01 | 1.61 | 3.84 |
| Denotes rejection of the hypothesis at the 0.05 level.  Trace test indicates 1 cointegrating eqn at the 0.5 level  Max-eigenvalue test indicates 1 cointegrating eqn at the 0.05 level | | | | | | | |

*Source: Author’s Computation from E-views Output 10.0*

The result of multivariate cointegration test based on Johansen and Juselius cointegration technique reveal that there is one cointegrating equations at 5% for the trace statistic and one cointegrating equation for Max-Eigen.

*Measurement of Stock market price volatility*

In other to measure the volatility of stock price, there is need to first check whether the series is characterized, by ARCH effects. To do this, we estimate equation 1 i.e the mean equation in section three and we plot the graph of the residual of the estimated result. These are shown below:

*Figure 4.1: Testing for ARCH (1) Effects in Stock Price before Democracy*

From the time plot of the series in figure 4.1 it is clearly showed that there are period with larger and smaller volatility in the sample with a prolonged period-of low volatility at some point and a prolonged period of high volatility. In other words, the period of high volatility is followed by period of high volatility and the period of low volatility is followed by that of low volatility. Therefore, the above suggest that residual or error term is conditionally heteroscedastic and it can be represented by ARCH and GARCH model.

*4.4.1 Volatility before Democracy Period*

Table 4.4 revealed the result of GARCH(1,1) model using the normal Gaussian distribution, ARCH effect is found significant meaning that information about previous values of stock market influences today’s stock market volatility.

Table 4.4: ARCH and GARCH Model Result

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | Coefficient | `Std Error | Z-Statistic | Prob. |
| Mean Equation | | | | |
| C | 0.019833 | 0.004656 | 4.259941 | 0.0000 |
| D(LASI(-1)) | 0.239677 | 0.128650 | 1.863010 | 0.0425 |
| Variance Equation | | | | |
| C | 0.001341 | 0.000690 | 1.944764 | 0.0418 |
| ARCH(-1) | 0.450737 | 0.079643 | 1.892654 | 0.0584 |
| GARCH(-1) | 0.528290 | 0.211311 | 2.500056 | 0.0124 |
| D(INF) | -9.20E-05 | 3.71E-05 | -2.482485 | 0.0130 |
| D(INT) | 0.000370 | 0.000126 | -2.935107 | 0.0033 |
| D(EXR) | -5.03E-05 | 7.84E-06 | -6.410950 | 0.0000 |
| Degree/Severity and Persistency | | | | |
| Degree of Volatility 0.979027 | | | | |
| Mean of Volatility 0.022562 | | | | |
| Persistency D(LASI(-1) 0.239677 | | | | |
| Residual Diagnostic | | | | |
| Jarque Bera 109.8788 | | | | |
| Prob. 0.000000 | | | | |
| Heteroskedasticity Test: ARCH | | | | |
| F- Stat 2.03081 | | | | |
| Prob. 0.13450 | | | | |

*Source: Author’s Computation from E-views Output 10.0*



*Figure 1.2 Residual Diagnostic Test*

Also, GARCH effect is found significant which indicates that previous period volatility in stock market price can influence today’s stock market price volatility. It then means that stock market price is influenced by ARCH and GARCH factors of its own shocks for the period of study.

Interest rate was also significant meaning that it is an outside shock that influence the volatility in stock market price in Nigeria, while inflation and exchange rate were found to be insignificant which is an indication that, the variable cannot be transmitted to the volatility in stock price.

Residual diagnostic test result shows that, the null hypothesis of no serial correlation, no ARCH and that the residual is normally distributed are accepted as the probability values are less than 5%.

To ascertain the degree and severity of stock price volatility in Nigeria during democracy era, the components of ARCH and GARCH terms estimated in the variance equation presented in table 4.4 are summed. The sum of the ARCH and GARH coefficients (α4 + α5) is 0.450737 + 0.528290 = 0.979027 which is close to one and greater than 0.5. This is a clear indication that volatility of stock price is present and persistent in Nigeria. Therefore, the sum of the square error term and conditional variance revealed that stock price volatility exist during the period under review.

**5. Conclusion**

This study appraised the existence of volatility in stock prices in an era of democracy in Nigeria. For this purpose, we examined the degree and persistence of stock prices volatility in the stock market for the period of 1999:6 to 2017:12. Using GARCH (1,1) model, the result revealed that the components of ARCH and GARCH terms is close to one and greater than 0.5 which means that volatility is highly present in stock market prices in Nigeria in democracy era. Therefore, the sum of the square error term and conditional variance revealed that stock price volatility exist during the period under review. In the same vein, interest rate, inflation and exchange rate as appeared in the model represent an outside shock that influence the volatility in stock market price in Nigeria.

**References**

Adeniji, Sesan Oluseyi, Nwokoma, N. I. & Oke, O. Olubode (2018). An Appraisal of Stock Market Prices Volatility Before Democracy in Nigeria. *Bingham Journal of Economics and Allied Studies* (*BJEAS).* Vol. I No. I June, 2018.

Alexakis, P., Petrakis, P., (1991). Analysing stock market behaviour in a small capital market. Journal of Banking and Finance 15, 471-483.

Black, F. (1976). Studies of stock price volatility changes. Proceedings of the 1976 Business Meeting of the Business and Economics Statistics Section. American Statistical Association, Washington, DC., 177–181.

Bollerslev, T. (1986). Generalized autoregressive conditional Heteroscedasticity. Journal of Econometrics, 31(3), 307–327.

Bouchaud, J-P., Kockelkoren, J., and Potters, M., (2004). Random walks, liquidity molasses and critical response in financial markets. Science & Finance (CFM) working paper archive 500063, Science & Finance, Capital Fund Management.

Brooks, R.D., Davidson, S., and Faff, R. W., (1997). An examination of the effects of major political change on stock market volatility: the South African experience Journal.

Chan, Y., and J. Wei (1996). Political Risk and Stock Price Volatility: The Case of Hong Kong. *Pacific Basin Finance Journal* 4, pp.259-275.

Chesney, M., Reshetarb, G., Karamana, M., (2011). The impact of terrorism on financial markets: an empirical study. *Journal of Banking and Finance,* 35 (2), 253-267.

Clara, P. and R. Valkanov (2003). The Presidential Puzzle: Political Cycles and the Stock Market. *Journal of Finance* 58, pp.1841-1872.

Engle, R. F. (1982). Autoregressive conditional heteroscedasticity with estimates of the variance of United Kingdom inflation. *Econometrica*, 50(4), 987–1007.

Foerster, *S.* R. (1994). Stock Market Performance and Elections: Made-in-Canada Effects? *Canadian Investment Review*, pp.39-42.

Foerster, S. R. and *J.* J. Schmitz (1997). The Transmission of US Election Cycles to International Stock Returns. *Journal of International Business Studies* 28, pp.1-27

Gemmill, G. (1992). Political Risk and Market Efficiency: Tested Based in British Stock and Option Markets in the 1987 Election. *Journal of Banking and Finance* 16, pp.211-231.

Glosten, L. R., Jagannathan, R., & Runkle, D. E. (1993). On the relation between expected value and the volatility of the nominal excess return on stocks. Journal of Finance, 48(5), 1779–1801.

Gwilym, 0. A. and M. Buckle (1994). The Efficiency of Stock and Options Market: Tests Based on 1992 UK Election Polls. *Applied Financial Economics* 4, pp.345- 354.

Hanousek, J., Kocenda, E., and Kutan, A. M., 2008. The reaction of asset prices to macroeconomic announcements in new en markets: Evidence from intraday data. CERGE-EI Working Paper No. 349.

Hongyu, P and Zhichao, Z (2006). Forecasting Financial Volatility: Evidence from Chinese Stock Market. Working Paper in Economics and Finance, No.06/02, University of Durham.

Huang, R. D. (1985). Common Stock Returns and Presidential Elections. Financial Analysts Journal 41, pp.58-61.

Karolyi, GA., (2006). The consequences of terrorism for financial markets: what do we know? Ohio State University, Working paper.

Konzelmann, S., Wilkinson, F., Fovargue-Davies, M., & Sankey, D. (2010). Governance, regulation and financial market instability: the implications for policy. *Cambridge Journal of Economics*, *34*(5), 929-954.

Lahaye, J., Laurent, S., and Neely, C. J., (2009). Jumps, cojumps and macro announcements. Working Paper of Federal Reserve Bank of St. Louis, No 2007­032, Revised Version.

Lee, S. S., and Mykland, P. A., (2008). Jumps in financial markets: a new nonparametric test and jump dynamics. *The Review of Financial Studies*, Vol. 21, No. 6, pp. 2535 — 2563.

Leon, H., Nicholls, S., Sergeant, K., (2000). Testing volatility on the Trinidad and Tobago stock exchange. *Applied Financial Economics* 10, 207-220.

Lobo, E, (1999). Jump risk in the U.S. stock market: Evidence Using Political Information. *Review of Financial Economic* 8, 149-163.

Milas, C. K. (2000). Employment, Output and Political Business Cycle Effects in the Greek Non-tradable Sector. *Applied Economics* 32, 123-133.

Nelson, D. B. (1991). Conditional Heteroscedasticity in asset returns: A new approach. Econometrica, 59(2), 347–370.

Nordhaus, W. D. (1975). The Political Business Cycle. *Review of Economic Studies.* 42, pp. 169-190.

North, M. (2002). Forecasting Stock Index Futures Price Volatility: Linear vs. Nonlinear Models. *The Financial Review*, 37, 93-104.

Osazevbaru, H. O. (2014). Measuring Nigerian stock market volatility. *Singaporean Journal of Business Economics, and Management Studies*, *2*(8), 1-14.

Perotti, E. C. and P. V. Oijen (2001). Privatization, Political Risk and Stock Market Development in Emerging Economies. *Journal of International Money and Finance* 20, pp.43-69.

Porteba, J. M. (2000). Stock Market Wealth and Consumption. *Journal of Economic Perspectives*, 14 (2) pp 99-118.

Reilly Jr, W. B. and W. A. Lukseitch (1980). The Market Prefers Republicans: Myth or Reality?" *Journal of Financial and Quantitative Analysis* 15, pp.541-559.

Santa-Clara, P. & Valkanov, R. (2003). The presidential puzzle: Political cycles and the stock market, The Journal of Finance, LVIII (5), 1841-1872.

Soh, B. H. (1986). Political Business Cycles in Industrialized Democratic Countries. Kyklos 39, pp.31-46.

Stoken, D. (1994), Strategic Investment Timing, Chicago, Probus Publishing.

Zakoian, J. M. (1994). Threshold Heteroscedasticity models. Journal of Economic Dynamics and Control, 18(5), 931–955. http://dx.doi.org/10.1016/0165-1889 (94)90039-6



**The Imperative of Institutional Approach to Combating Corruption in Nigeria**

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**Abstract**

*Arguably, corruption has been identified as one of the major stumbling blocks to Nigerian quest to sustainable democracy that guarantees mass participation and people-oriented leadership. Today, institutions and public office holders that are supposed to serve the Nigerian people are enmeshed in corruption. This ultimately poses grievous threat to economic growth and development of Nigeria. The recent monumental corruption cases and recovery of huge amount of money from public officers are pointers to the fact that the institutions charged with the fight against corruption and good governance find it difficult to rise above their individual or groups’ gains. They are unable to discharge their functions effectively leading to pervasiveness of corruption in the country. It is against this backdrop that this study evaluated the factors responsible for the successes and failures of the major anti-graft agencies as well as the general impact of these on the polity. The study adopted content analysis of documentary data sourced on the subject. The findings of the study revealed that although there have been media awareness on anti-graft war in the country, little or no impact has been made except for some recovery of public funds looted by some public officers. The paper, therefore, concluded that although in this part of the world, strong institutions need a strong personality to make them work; anti-corruption agencies should be developed in such a way that they will be able to use the powers provided for them by the enabling laws and effectively fight corruption, irrespective of who heads the presidency.*

**Keywords:** Nigerian polity, Corruption, Presidency, anti-graft agencies, Institutions

**JEL** **Codes**: G29

**1. Introduction**

Arguably, corruption has been identified as one of the major stumbling blocks to Nigeria’s quest to sustainable democracy and development. It comes in many guises, ranging from the familiar experience of administrative bribery in daily encounters with public officials to clandestine grand corruption schemes to misappropriate public funds (United Nations Office on Drugs and Crime, UNODC, and National Bureau of Statistics, NBS, 2107) making the country losing “up to 40% of its oil revenue to corruption” (Ikpeze, 2013:148). This has hindered mass participation and people-oriented leadership. It has turned the country’s democracy into *moneycracy* and *Nairacracy*– only those who are rich or those supported by moneybags can vie for public offices and they buy the support of those (the majority of the electorate) who have been ‘crippled’ to vie for elective positions. Most often, the moneybags and most of the Nigerian politicians got their money through corruption; either as former public office holders or as godfathers. They are the “daring “political entrepreneurs”” (Adetula, 2008: xxviii).

Even though since 1960 and before 1999, Nigeria has been alternating between civilian and military regimes, corruption has been one of the country’s greatest challenges. One of the central reasons adduced for military takeover during the era was corruption. Political history of Nigeria reveals that sometimes Nigerians preferred military dictatorship to civilian administration only to find out that men in uniform were not better. Consequently, anti-graft war is usually instituted by every government in the country. However, the fight against corruption has been made either ad-hoc or not properly institutionalised. They were either ethical revolution, war against indiscipline or just mere media campaign and usually ended alongside the respective administrations that inaugurated them. The turning point was 1999.

Having observed that corruption is endemic in Nigeria, the former President, Chief Olusegun Obasanjo created two major anti-graft agencies during his tenure that began in May 1999. He created the Independent Corrupt Practice and Other Related Offences Commission (ICPC)in 2000 and the Economic and Financial Crime Commission (EFCC) in 2002. These bodies were expected to play complementary role in the fight against corruption in the country. They are to help delist Nigeria from global corruption index and help restore the country’s lost glory. The ultimate aim of this is to help the government deliver the dividends of democracy to Nigerians as corruption is reduced to the barest minimum.

However, since the establishment of these agencies corruption is still prevalent. Ikpeze (2013) notes that large body of legislation and several institutions notwithstanding, corruption remains a cankerworm of gargantuan proportions that has eaten very deep into the fabric of Nigeria. Apart from other identified challenges, “there are uncertainties and conflicts about the dividing line between the roles, functions and powers of EFCC, ICPC, etc. on investigation, handling and documentation of fraud or corruption” (Ikpeze, 2013:161) in relation with other agencies of government, especially with the Ministry of Justice and the State Security Service (SSS). This makes the anti-graft war herculean task for the institutions established to fight it. Instead of reducing, it seems the situation is getting worse by the day; if the revelations and discovery of looted public funds are anything to go by.

Therefore, this study examines the imperative of institutional approach to combating corruption and instability in Nigeria. The first sectionof the study, after this introduction, focuses on the theoretical framework adopted for the study. The second deals with conceptual analysis where the basic concepts in the study are put in their correct perspectives. The third section takes a historical excursion into corruption in Nigeria. The fourth examines how an institutional approach to fighting corruption in the country can be achieved. The fifth and last section is the concluding remarks.

**2. Conceptual Analysis**

It is fundamental to put the two main concepts, corruption and institution, in this study in their correct perspective in line with the objective of this study. This will not only help to understand what these concepts stand for but also to operationalise their usage in the study.

Due to its pervasiveness in the Nigerian society, the word “corruption” is one of the most defined words. The attention the concept has attracted from scholars makes one to be lost in what the word really stands for. In fact, reading through literature reveals that unless one is ‘selective’, one may miss the essence of the word. Notwithstanding, what is noteworthy is the fact that corruption is the act of doing the wrong thing. According to Usman (2008), corruption is much more than public officers taking bribes and gratification, committing fraud and stealing funds or assets entrusted to their care. It is the deliberate violations of rules and procedures for gainful ends, either in private and public affairs. These gains may be in cash, kind, or it may even be psychological or political, but they (gains) are made from the violation of the integrity of an entity and involve the subversion of its quality and capacity.

From the perspective of gains corruption accrued to the perpetrator, World Bank and Transparency International (TI) define corruption as abuse of public office for private gains for the benefit of the holder of the office or some third party (cited in Ogbeidi, 2012). Therefore, Ogbeidi (2012) argues that viewed from these definitions, corruption can be broadly understood as unethical behaviour. He argues that corruption can be perpetrated for private and group enrichment and for power preservation purposes, especially when it takes political dimension (political corruption). In this regard:

*Political corruption usually encompasses abuses by government officials such as embezzlement and cronyism, as well as abuses linking public and private actors such as bribery, extortion, influence peddling, and fraud, to mention but a few. In this regard, corruption threatens good governance, sustainable development, democratic process, and fair business practices (Ogbeidi, 2012:5).*

In this state of affairs, the political leadership and the entire state function abnormally causing the underdevelopment of the political system, and development becomes elusive.

In his submission, Walecki (2008) argues that illegality is crucial to many definitions of political corruption. He opines that some legally sanctioned but dubious uses of state resources in semi-authoritarian and authoritarian regimes, which are not defined as corruption by the state, amount to corruption. Thus, Walecki (2008:2) argues:

*The law is not a proper guide (to defining corruption) not only because it is not perfect with regard to encompassing all cases widely perceived as corrupt, but also because the law itself may be a result of political corruption.*

Since the ruling class can easily use laws to justify the use of the state resources, it will be improper to define corruption from the law perspective. It will be easy to justify the selfish uses of public resources by the ruling class for personal gains.

From the institutional perspective, “corruption can definitely be related to the quality of governance” (Enwereonye, Christopher, Egbeh and Ibe, 2017:41). It is argued that weak state institutions, characterised by inadequate capacity to manage society, through a framework of social, judicial, political and economic checks and balances, creates a breeding ground for corruption to flourish (Enwereonye, Christopher, Egbeh and Ibe, 2017). This is the case in Nigeria. The inability of the institutions of the Nigerian State to effectively guide, regulate (excesses) and direct the affairs of the citizenry leads to corruption. Little wonder, Achebe (1984) as cited in Enwereonye, Christopher, Egbeh and Ibe (2017) submits that Nigerians arecorrupt because the system under which they live today makes corruption easy and profitable. This is unavoidable because the institutions of the state that should punish and regulate excesses leading to unethical behaviours are powerless and inept.

From unethical behaviours perspective, corruption according to the (Independent) Corrupt Practices and other Related Offences (ICPC) Act are actions that result into bribery, fraud and other related offences. Offences punishable in this regard include wilful giving and receipt of bribes and gratification to influence a public duty, fraudulent acquisition and receipt of properties, deliberate frustration of investigation by the anti-corruption commission (ICPC), making false returns, making of false or misleading statements to the anti-corruption commission, attempts, conspiracies and abetments of offences under the Act (cited in Ikpeze, 2013). The manifestations of these corrupt practices and offences punishable under the law are arguably pervasive in Nigeria. This has become the bane of sustainable democracy and development in the country.

In fact, Lawal and Victor (2012) opine that corruption is the biggest problem Nigeria has, a bane to good governance, which has invariably translated into corrosive and perpetual poverty among the citizenry. This is as a result of the fact that the money that is supposed to be expended on social needs and infrastructures to engender development circulates among and within the few privileged and thereafter, taken abroad for investment. It is the most serious developmental challenge to Nigeria and driven by official tolerance for illicit enrichment, concentration of wealth and economic power in the hands of a few, blending of political and economic interests (Ikpeze, 2013). This is all because of weak institutions.

Institution is any persistent system of activities or any patterns of group behaviour (Enemuo, 1999) and the glue that holds society together with system of constitutive rules (Searle, 2005).The history of the usage of the term in social sciences dates back at least to Giambattista Vico in his *Scienza Nuova*of 1725 (Hodgson, 2006), and has been conceived as offices and agencies arranged in a hierarchy, each agency having certain functions and powers (Enemuo, 1999). They play a pivotal role in the overall development of any nation. While some institutions are revenue generating, others can be rule making, distributive or watchdogs to forestall any form of systemic abuse and failure.

Noteworthy is the fact that institutions are the kinds of structures that matter most in the social realm: they make up the stuff of social life (Hodgson, 2006). It is argued that the increasing acknowledgement of the role of institutions in social life involves the recognition that much of human interaction and activity is structured in terms of overt or implicit rules. Institutions are thus defined “as systems of established and prevalent social rules that structure social interactions” (Hodgson, 2006:20).They constrain and enable behaviour. The existence of rules implies constraints; constraints on what could lead to Hobbesian state of nature, when everyone does what pleases him/her leading to “the situation (where) humans are paralysed by existential fear” (Keizer, 2008:2). Thus, the existence of institutions is sine qua non to living a peaceful life. Therefore, institutions are not only fundamental to good (democratic) governance but are also crucial for guaranteeing economic development, not matter the society; be it developed, underdeveloped, traditional or modern.

Consequently, institutions matter when explaining economic performance(Keizer, 2008). This is because:

*In an interactive process between individual and group institutions are developed that mould human motivations and channel human actions in such a way that basic needs can be satisfied more efficiently (Keizer, 2008:5).*

And as soon as an institution becomes established, it then provides a structure within which a society can create (Searle, 2005) the reality it desires. And in fact:

*The essential role of human institutions and the purpose of having institutions is not to constrain people as such, but, rather, to create new sorts of power relationships. Human institutions are, above all, enabling, because they create power, but it is a special kind of power. It is the power that is marked by such terms as: rights, duties, obligations, authorizations, permissions, empowerments, requirements, and certifications (Searle, 2005:10).*

The essential role of anti-graft institutions and/or agencies in Nigeria is congruent to the argument of Searle (2005). The EFCC and ICPC, two among the anti-graft institutions of government in the country, are essentially established to ensure compliance to official rules and regulations on the use of public resources in the country. They are created to monitor how public officials go about their duties, fulfilling their obligations, using public resources in line with the public authorisations and permissions as it is required of them. However, how have has this manifested in the country?

**3. Theoretical Framework**

The theoretical framework adopted for this study is system theory. David Easton is usually credited with pioneering the application of this theory to the analysis of political process (Enemuo, 1999). As cited in Enemuo (1999), Easton defined political system as the system of interactions in any society through which binding or authoritative decisions are made and implemented. It is argued that every political system exists within an environment of other systems – physical, biological, social, psychological, etc., which affect it and are in turn affected by the political system. This is through continuous transactions and exchanges.

In the terminology of the system theory, the political system receives inputs from the environment in the form of demands and supports; it produces outputs in the form of policies and decisions (Gauba, 2003). The outputs are said to flow back into the environment through a feedback mechanism, giving rise to fresh demands. It is important to note that:

*Feedback is essentially a communication process which produces action in response to information about the state of the political system, or some part thereof, or its environment, to structures within the system in such a way that the future action of those structures is modified in consequence (Gauba, 2003:94).*

Noteworthy, in line with the tenets of the system theory, is the fact that the feedback from the Nigerian society, which is the environment of the political system, on the pervasiveness of corruption in the country proves that anti-corruption needs urgent attention. It is arguably correct to state that this led to the establishment of the EFCC and ICPC for anti-graft war in the country. However, the outputs (in form of the ability of the EFCC and the ICPC to decisively fight corruption) have not met the demand of Nigerians that brought them to existence. Therefore, according to system theory which states that feedback leads to modifications of future action of structures of political system in order to meet the further demands from the political system, the EFCC and the ICPC need institutional modification for them to function more effectively. This is line with the proposition of the theory, as cited in Gauba (2003), that the Nigerian people (and the authors of this study) have appraised the position of the goal of these institutions, their distance from it, and the changes this distance brought to their performance leading to the conclusion that the EFCC and the ICPC needs institutional strengthening.

**4. Results**

*Corruption in Nigeria: Then and Now*

It is unfortunate that the available records on the history of the political development of Nigeria since independence have shown that the reins of government has always fallen into the hands of a political leadership class that showed more interest in private, group or ethnic gains than in the general wellbeing of the Nigerian state (Ogbeidi, 2012). This, however, was a departure from pre-colonial Nigerian society when accountability, transparency and good governance were the hallmark of political leadership. Okolo and Raymond (2014:31) argue that:

*Pre-colonial Africa, for the most part, was founded on strong ethical values sometimes packaged in spiritual terms, but with the end result of ensuring social justice and compliance. In both centralized and decentralized pre-colonial African communities, governance was conducted with the utmost seriousness. As the laws were mostly unwritten in nature and therefore prone to being easily forgotten, they were often couched in supernatural terms to instill fear and be instilled in the subconscious. Examples abound of the heavy emphasis on accountability and good governance across several pre-colonial African communities.*

The reverse has been the case since European forms of government were introduced in Nigeria. Even before independence, corruption cases were rife.

According to Storey (1953),before independence, there have been cases of official misuse of resources for personal enrichment (cited in Ogbeidi, 2012). The First Republic under the leadership of Sir Abubakar Tafawa Balewa, the Prime Minister, and Nnamdi Azikwe, the President, was marked by widespread corruption (Ogbeidi, 2012). During the time, government officials looted public funds with impunity. Federal Representative and Ministers flaunted their wealth with reckless abandon. In fact, it appeared there were no men of good character in the political leadership of the First Republic. Politically, Ogbeidi (2012) argues, the thinking of the First Republic Nigerian leadership class was based on politics for material gain; making money and living well.

The reckless lifestyle of the public officials and the widespread of corruption were part of the reasons adduced by the military for taking over power in 1966. However, the political history of the country also reveals that even the military did not far better. From Gowon administration to Babangida Administration and to Abdulsalam Administration, there were cases of misappropriation and embezzlement of public funds. For instance, ten of the twelve state military governors in the Gowon regime were found guilty of corruption and were dismissed from the military services with ignominy (Ogbeidi, 2012). In addition:

*For no explicable reason from 1977 the Obasanjo government stated (sic) borrowing heavily on the Euro–dollars market at exorbitant interest rates and at a time when Nigeria’s crude petroleum was in excess of2 million barrels per day and petroleum sales revenue was more than $20 billion U.S dollars per annum. In this way, Obasanjo’s government succeeded in inflating Nigeria’s external debt stock from the modest level of $560million U.S dollars in 1975 when Gowon was overthrown (CBN, 1975:8a) to $6.8 billion in 1979 “Prior to the change of government (Okigbo, 1986) (cited in Austine, Charles and Raymond, 2013:23).*

Since Second Republic up till the dawn of Fourth Republic, corruption seems to have become culture in Nigeria. In Second Republic, for instance, “It was claimed that over $16 billion in oil revenues were lost between 1979 and 1983 during the reign of President Shehu Shagari” (Ogbeidi, 2012:8). Shagari Administration was full of over-invoicing, contract inflation, rice importation, deliberate sabotaging of every conceived policy in order to profit (Enefe, 2008). The administration placed personal interest over the collective interest of Nigerians which encouraged corruption. The hallmark of corruption in Second Republic was frequency of federal buildings mysteriously going up in flames, most especially just before the onset of ordered audits of government accounts, making it impossible to discover written evidence of embezzlement and fraud (Dash, 1983 cited in Ogbeidi, 2012). And when General Muhammadu Buhari took over from Shagari (through coup d’état) he observed that:

*The corruption, inept and insensitive leadership in the last four years has been the source of immorality and impropriety in our society. Arson has been used to cover up fraudulent acts in public institutions. I am referring to the fire incidents that gutted the P & T building in Lagos, the Anambra State Broadcasting Corporation, the Republic Building in Lagos, the Federal Ministry of Education, the federal Capital Development Authority account office at Abuja and NET at a time when Nigerians were being apprehensive of the frequency of fraud, scandals and government’s apparent incapacity to deal with it (cited in Rinji, 2001:166).*

The economic and development situation of the country was in bad shape when Chief Olusegun Obasanjo was elected the President of Nigeria in May 1999. This was due to bad leadership and widespread of corruption. As Chief Olusegun Obasanjo captured the situation in his inaugural speech:

*…Instead of progress and development, which we are entitled to expect from those who governed us, we experienced in the last decade and half…deterioration leading to instability and weakening of all public institutions…The citizens developed distrust in government, and because promises made for the improvement of the conditions of the people were not kept, all statements by government met with cynicism…government and all its agencies became thoroughly corrupt and reckless…the impact of corruption is so rampant and has earned Nigeria a very bad image at home and abroad (Obasanjo, 1999).*

Even though Chief Olusegun Obasanjo was able to establish the EFCC and the ICPC for anti-graft war in the country, his administration was not also immune from corruption. One thing common to all the regimes, whether military or civilian (except Generals Murtala and Buhari’s regime) is the fact that they took their ritual bath in the pungent water of corruption (Enefe, 2008). Obasanjo has been described as the father of corruption in Nigeria, sitting on stolen wealth of the country (The Vanguard, 16th March, 2017) and grandfather of corruption, the most corrupt Nigerian that ever held public office (The Punch, 25th November, 2016). The level of success he attained on anti-graft war was only based on his personality. This is despite the many cases of corruption during his presidency.

Therefore, the fight against corruption in Nigeria has been determined by the personality of the individual in power. This is because, from the beginning of their creation till today, the success achieved by the EFCC and the ICPC are based on the level of the commitment by the siting president. However, scholars like Ogundiya (2009) as quoted in Audu (2013) has noted that the greatest challenge to anti-corruption in Nigeria is the purported reformers. He added that in a situation of prevalent corruption among state managers and the top echelon of the Nigerian bureaucrats and public office holders, the initiators and implementers of anti-corruption reforms are archetype of corruption. As such, he argued, anti-graft agencies such as the EFCC and ICPC are only used as instruments of oppression and intimidation in the hands of the executive.

Today, the fight against corruption is tied to the personality of the current President Muhammadu Buhari, who is determined to stamp out the vices. The present administration has uncovered huge sum of money misappropriated and embezzled in the last administration. Only the office of the National Security Adviser (NSA) stole $2 billion in funds and another $148 billion missing that were meant to purchase weapons and other equipment to fight Boko Haram terrorist (Foreign Policy, November, 15th 2015). The same is arguably the case in every sector of the Nigerian economy and national life. However, corruption is not only identifiable with the last administration; it is common to most governments that have ruled the country.

According to Senator Shehu Sani (the Chairman Senate Committee on Foreign and Domestic Debts and Vice Chairman Senate Committee on Foreign Affairs), over $200 billion has been stashed away from Nigeria to Dubai in the United Arab Emirate (UAE) alone in the past 20 years (The Vanguard, 26th January, 2016). This is excluding estates, bonds and other securities bought with Nigeria stolen money. In 2013 alone, an estimated 57 pounds was laundered within and through the United Kingdom (UK) representing 3.6 per cent of that year’s national real gross domestic product (The (Vanguard, 20th October, 2017).In fact, according to the Minister of Justice and Attorney General of the Federation, Abubakar Malami (SAN), the exact figures of looted funds outside the country is difficult to ascertain (cited in This Day, 15th October, 2016). Although according to Mathew Page, the former United States (US) intelligence community expert who was a senior policymaker at the White House State Department (Defence Department), the US and the UK are the biggest recipients of funds looted from Nigeria (Vanguard, 20th October, 2017), Nigerian politicians keep stolen money, including Switzerland, and in any country they think it is safe. And accordingly, this chunk of Nigeria’s wealth which has been stocked and hidden in foreign countries by highly placed persons is adversely affecting the economic growth and advancement of the country (Daily Post, April 4th, 2017). The personality of no president has been able to put a stop to it. Even though each of this administration put strategies in place to fight corruption in Nigeria, these strategies, at best, lead to either recovery of stolen funds or jail sentences for few public officers.

Even though the watchwords of the Muhammadu Buhari Administration is public officers must account for what they own (The Guardian, 26th May, 2016) and this has led to the scoring of the Administration high on anti-corruption (The Sun, 3rdOctober, 2017), it is not yet *uhuru* in anti-graft war in Nigeria. In fact, the manner in which some corruption cases involving senior public officers in the Administration were handled proves that only the personality of even the widely acclaimed incorruptible Muhammadu Buhari is not enough to solve challenges associated with corruption in the country. The *grasscutting* corruption scandal of N233 million contract to clear invasive plant species in Yobe State involving the former Secretary to the Government of the Federation (SGF), Mr Babachir Lawal (The Sun, 23rd April, 2017) and the Nigerian National Petroleum Corporation (NNPC) $25 billion contract award scandal (Nigerian Tribune, 10th October, 2017) are enough evidences that institutionalisation of anti-graft war is the way out. With institutional approach to fighting corruption, even when President Muhammadu Buhari leaves office anti-corruption will still continue.

*Combating Corruption Using Institutional Approach*

The institutionalisation of anti-graft agencies becomes imperative based on the identified challenges with anti-corruption efforts in Nigeria. Also, this is fundamental due to the fact that the negative impact of corruption on sustainable democracy and economic development in Nigeria cannot be overemphasised. To institutionalise anti-corruption in the country, the fight should transcend only public sector. It should involve the private sector. This should begin with the operationalisation of the National Code for Good Governance developed by the Financial Regulation Council (FRC) of Nigeria. Although the hurried implementation of the Not-For-Profit Organisations part of the National Code generated heated controversies in the religious circle, especially as it affected the Nigerian Church, the Code should not be left to gather dust. The Code generated controversies basically because the Nigerian people were not involved and the FRC, perhaps, wanted to fill the vacuum the Securities and Exchange Commission (SEC) created in 2003 when it developed only the Code of Corporate Governance for Public Companies. The controversies led to the President Muhammadu Buhari removing the Executive Secretary of FRC. However, the careful study of the National Code shows that it is a document (if duly implemented) that can help fight corruption both in the public and private sectors in the country.

Consequently, anti-corruption in Nigeria should permeate all the sectors, segments and layers of the Nigerian society. Until the fight is owned by Nigerians, the government is just chasing a shadow. Public officials that are mostly the focus of anti-corruption in the country are, first of all, Nigerians. To successfully fight corruption, therefore, the government should encourage all and sundry to be involved. This can begin with campaigns by the National Orientation Agency (NOA). NOA should intensify her efforts to make Nigerians see anti-corruption as theirs. This can be done by strengthening the Whistle Blowing Policy. The effort of the government is commendable in this regard especially as it paid the whistle blower who helped in the recovery of Ikoyi Mansion loot. If government pays all the whistle blowers and the NOA keeps on encouraging other Nigerians to ‘blow more whistles’, anti-corruption will be more successful in the country.

Anti-corruption in the country will be a fruitless effort if the anti-graft agencies are corrupt. The leadership of the EFCC and the ICPC should get rid of the bad eggs among them. Some of the members of staff of these agencies are corrupt. Recently, the acting chairman of the EFCC, Mr Ibrahim Magu, confirmed this as he said, “There is corruption everywhere, every institution, including the EFCC. We are battling with internal corruption” (The Premium Times, December 12, 2016). “You cannot give what you do not have” goes the popular saying. Therefore, these anti-graft agencies cannot fight any corruption if they are infected with corruption. There should be internal purging of the EFCC and the ICPC for proper institutionalisation of anti-corruption in Nigeria and for sustainable anti-graft war in the country.

The seemingly battle of supremacy, conflict of interest and confusion about who is responsible for what between the EFCC and other related agencies, especially the Ministry of Justice and the SSS should be done away with. The battle of superiority between the former Attorney-General of the Federation and Minister of Justice, Chief Michael Kaase Aondoakaa, for instance, did not augur well for anti-corruption in Nigeria. In addition, the recent inter-agency fight and contradiction between the EFCC and the SSS, especially the scenarios that played out in the National Assembly over the confirmation of Ibrahim Magu as the substantive chairman of the EFCC was antithesis to war against corruption in the country. Instead of working together, these agencies of government, especially their leaders, are working against the success of each other. The pitiable part is the fact that the headship of these government institutions are appointed by the same President, who they are supposed to work for to fulfill his anti-corruption agenda.

To complement this, governance in the country should take the form of anti-corruption. What this is meant is that there should be value re-orientation in the public service; that access to the state resources does not mean primitive accumulation. One begins to wonder how an individual will possess eight-six (86) luxury cars and drive them. The demonstration of this kind of primitive accumulation by one Mr. Ibrahim Tumsah, a Director of Finance and Account in the Federal Ministry of works, Power and Housing, who was ordered to forfeit the cars, four houses and a quarry plant in Abuja (The Punch, 14th December, 2017; the ICPC, 2017) is just one of such examples in Nigeria. There are so many of such revelations in the recent time. This goes to prove that good ethical value has been eroded in the country. Therefore, honesty, transparency and probity should be entrenched in governance through the observation of due diligent rules governing official conducts. This should be entrenched by strict observance of due process in governance and enforcement of law against public officials who go contrary to the law. Consequently, public officials at all levels should be made to account for their stewardship during and after their tenure of office.

**5. Conclusion and Recommendation**

*Conclusion*

The task in this work has been to examine the importance of institutional approach to anti-graft war in Nigeria. The study has identified that corruption is endemic in the country. The widespread of this social vice has led to economic underdevelopment of the country. It is the contributory factor to the inability of the country to deliver the dividends of democracy to the majority of Nigerians. In addition, it has limited political participation in the country; those who have accumulated wealth through politics, at the expense of the masses, edge the masses out by even buying their votes and subjecting them to abject poverty in the process. This is no thanks to corruption and primitive accumulation by some public officials. Some examples of these are given in the work.

Noteworthy is the fact that corruption in Nigeria has assumed an unprecedented height where political office holders as well as top bureaucrats abuse the trust conferred on them through mismanagement, embezzlement and siphoning of public funds for their private use. Consequently, efforts have been made to get rid of corruption in the country. However, it seems the efforts are not yielding the commensurate results. Some of the efforts by various governments are merely cosmetic, media campaign or at best based on the strong personality of the Mr President. This is especially the case since the establishment of the EFCC and the ICPC by the then President, Chief Olusegun Obasanjo. The same applies to the present efforts by President Muhammadu Buhari.

Therefore, the imperative of institutional approach cannot be overemphasised because it makes anti-graft agencies not to be tied to the presidency. It grants the agencies autonomy of action and deeds within the laws establishing them. In other words, it will assist to insulate the anti-graft agencies from the overbearing influence of the presidency, ruling party’s members and civil/public servants. Although, this study acknowledges the fact that in this part of the world, strong institutions need a strong personality to make them work; the argument of this study is that anti-corruption agencies should be developed in such a way that they will be able to use the powers provided for them by the enabling laws and effectively fight corruption in Nigeria.

*Recommendation*

Arising from the foregoing, the study makes the following recommendations with a view of not only insulating the anti graft agencies from the whims and caprices of the personality in power but to also ensure that that the war on corruption is institutionalized to outlived the administration of president Muhammadu Buhari.

1. The Independent Corrupt Practices and other Related Offences Commission (ICPC) and Economic and Financial Crime Commission (EFCC) should be alive with its responsibilities by ensuring that all extant laws regarding corruption and mismanagement are fully enforced to the latter.
2. The institutionalization of the fight against corruption requires that all hands must be on deck fight the scourge both in public and private endeavours for Nigeria to overcome her developmental challenges.
3. Both ICPC and EFCC must play a complementary role in the fight against the scourge for optimal result.
4. Reducing/minimising corruption in Nigeria can only achieve a significant success when stiffer penalties are invoked on culprit as paltry punitive measures cannot halt the spread of the menace.

**References**

Adetula, V. A. O. (2008). Introduction. In Adetula, V. A. O. (ed); Money and Politics in Nigeria. Abuja: International Foundation for Electoral System (IFES) Nigeria.

Audu, J. (2013). Efficacy of Economic and Financial Crime Commission (EFCC) in Combating Corruption in Nigeria. *The Sociological Journal,* 2(1.):168-175.

Austine, A., Charles, M. V. and Raymond, A. O. (2013). Corruption in Nigeria: A Historical Perspective. *Research on Humanities and Social Sciences,* 3(16):19-26.

Daily Post (4th April, 2017). Magu vows to recover loot abroad as EFCC plans foreign offices.[http://dailypost.ng/2017/04/04/magu-vows-recover-loot-abroad-efcc-plans-foreign- offices/](http://dailypost.ng/2017/04/04/magu-vows-recover-loot-abroad-efcc-plans-foreign-%09offices/); accessed 18th December, 2017.

Enefe, E. (2008). Nigeria Transits: The Consolidation of A Democratic Nation. Abuja: Kissa Communications Ltd.

Enemuo, F. C. (1999). Approaches and Methods to the Study of Politics. In Anifowose R and Enemuo, F. C. (Eds); Element of Politics. Lagos: Sam Iroanusi Publications.

Enwereonye, E. N., Christopher, P. S., Egbeh, P.C. &Ibe, S. (2017). Governance, Corruption and Anti-Corruption Initiatives in Nigeria: an Assessment of the Performance of EFCC. *International Journal of Advanced Studies in Business Strategies and Management,* 5(1): 37-51.

Foreign Policy (15th November, 2015). In Nigeria, $2 Billion in Stolen Funds Is Just a Drop in the Corruption Bucket. Retrieved from <http://foreignpolicy.com/2015/11/18/in-nigeria-2-billion-in-stolen-funds-is-just-a-drop-in-the-corruption-bucket/>; accessed 18th December, 2017.

Gauba, O. P. (2003). *An Introduction to Political Theory* (4th Edition). India: Macmillan.

Hodgson, G. M. (2006). What are Institutions? *Journal of Economic Studies,* 40(1):1-25

ICPC (2017). Civil servants to forfeit 86 Vehicles, four houses to FG. Retrieved from http://icpc.gov.ng/2017/12/15/civil-servant-forfeit-86-vehicles-four-houses-fg/; accessed 22nd December, 2017.

Ikpeze, N. (2013). Fusion of Anti–Corruption Agencies in Nigeria: A Critical Appraisal. *Afe Babalola University: Journal of Sustainable Development Law and Policy,* 1(1):148-167.

Keizer, P. (2008). The Concept of Institution: Context and Meaning. Utrecht School of Economics, Tjalling C. Koopmans Research Institute; Discussion Paper Series 08-22.

Lawal, T. and Victor, O. K. (2012). Combating Corruption in Nigeria. *International Journal of Academic Research in Economics and Management Sciences,* 1(4):1-7.

Nigerian Tribune (10th October, 2017). The NNPC’s $25 billion contract awards scandal. Retrieved from http://www.tribuneonlineng.com/nnpc-25-billion-contract-awards-scandal/; accessed 18th December, 2017.

Obasanjo, O. (1999). The Text of Inaugural Speech of President Olusegun Obasanjo following his swearing-in as the President of the Federal republic of Nigeria on May 29th 1999. Retrieved from <http://nigeriaworld.com/feature/speech/inaugural.html>; accessed 19th December, 2017.

Ogbeidi, M. M. (2012). Political Leadership and Corruption in Nigeria Since 1960: A Socio- economic Analysis. *Journal of Nigeria Studies,* 1(2):1-25

Okolo, P. O. and Raymond, A. O. (2014). Corruption in Nigeria: The Possible Way Out. *Global Journal of Human-Social Science: F, Political Science,* 14(7):31-38.

Rinji, U. A. (2001). A Nation Betrayed: Shared Responsibility and Collective Guilts. Kaduna: Samayo Press.

Searle, J. R. (2005). What Is an Institution? *Journal of Institutional Economics,* 1(1):1–22.

The Guardian (23rd May, 2016). The Editorial - Public officers and what they own. Retrieved from <https://guardian.ng/opinion/public-officers-and-what-they-own/>; accessed 18th December, 2017.

The Premium Times (December 12, 2016). There is corruption everywhere, including in EFCC – Magu. Retrieved from [https://www.premiumtimesng.com/news/more-news/216956- corruption-everywhere-including-efcc-magu.html](https://www.premiumtimesng.com/news/more-news/216956-%09corruption-everywhere-including-efcc-magu.html); accessed 21st December, 2017.

The Punch (14th December, 2017). ICYMI: Civil servant to forfeit 86 vehicles, four houses to FG. Retrieved from [http://punchng.com/civil-servant-to-forfeit-86-vehicles-four-houses- to-fg/](http://punchng.com/civil-servant-to-forfeit-86-vehicles-four-houses-%09to-fg/); accessed 22nd December, 2017.

The Punch (25th November, 2016). Obasanjo is grandfather of corruption in Nigeria –Reps. Retrieved from <http://punchng.com/obasanjo-grandfather-corruption-nigeria-reps/>; accessed 19th December, 2017.

The Sun (23rd April, 2017). BABACHIR David Lawal: The complete story. Retrieved from <http://sunnewsonline.com/babachir-david-lawal-the-complete-story/>; 18th December, 2017

The Sun (3rd October, 2017). Buhari administration scored high on anti-corruption. Retrieved from <http://sunnewsonline.com/buhari-administration-scored-high-on-anti-corruption/>; accessed 18th December, 2017.

The Vanguard (16th March, 2017). Obasanjo is Nigeria’s Father of Corruption, sits on Stolen Wealth – Fayose. Retrieved from [https://www.vanguardngr.com/2017/03/fayose- obasanjo-is-nigerias-father-of-corruption-he-sits-on-stolen-wealth/](https://www.vanguardngr.com/2017/03/fayose-%09obasanjo-is-nigerias-father-of-corruption-he-sits-on-stolen-wealth/); accessed 19th December, 2017.

The Vanguard (20th October, 2017). US, UK Biggest Recipients of looted funds from Nigeria - Expert. Retrieved from [https://www.vanguardngr.com/2017/10/us-uk-biggest-recipients-looted-funds- nigeria-expert/](https://www.vanguardngr.com/2017/10/us-uk-biggest-recipients-looted-funds-%09nigeria-expert/); accessed 18th December, 2017.

The Vanguard (26th January, 2016). $200bn Stolen Money Stashed in Dubai – Shehu Sani. Retrieved from <https://www.vanguardngr.com/2016/01/20bn-stolen-money-stashed-in-dubai-shehu-sani/>; accessed 18th December, 2017.

This Day (15th October, 2016). AGF: We Don’t Have Exact Figures of Looted Funds Abroad. Retrieved from [https://www.thisdaylive.com/index.php/2016/10/15/agf-we-dont-have- exact-figures-of-looted-funds-abroad/](https://www.thisdaylive.com/index.php/2016/10/15/agf-we-dont-have-%09exact-figures-of-looted-funds-abroad/); accessed 18th December, 2017.

United Nations Office on Drugs and Crime (UNODC) and National Bureau of Statistics (NBS) (2107). Corruption in Nigeria Bribery: Public Experience and Response. Abuja: UNODC

Usman, Y. B. (2008) Corruption in Nigeria. Selected Writings of YusufuBala Usman. Kano: Centre for Democratic Research and Training.

Walecki, M. (2008). Political Money and Corruption: Limiting Corruption in Political Finance. In Adetula, V. A. O. (ed); Money and Politics in Nigeria. Abuja: International Foundation for Electoral System (IFES) Nigeria.



**Determinants and Poverty Measurement in Nigerian Economy**

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**Abstract**

*This study takes a critical evaluation at the measurement and determinants of poverty in the Nigerian economy. Poverty concerns individual’s inability to cater adequately for the basic needs of food, clothing and shelter. It reflects inability to meet social and economic obligations; lack of gainful employment, skills, assets and self-esteem. It is anchored on limited access to social and economic infrastructures such as education, health, potable water and sanitation, thus limiting the chance of advance welfare to utmost level of capability. Despite sustained rates of economic growth in Nigeria, statistics on incomes and social indicators show poverty to be widespread, severe and almost increasing. Although government poverty alleviation programmes feature in many communities, but their effectiveness in addressing poverty is constrained by patterns of political patronage. This has led to inequality in the distribution of facilities and services, leaving the inaccessible or socially and politically marginal communities unsaved. While the alleviation of poverty still remains a major objective of development policy in Nigeria, the debate continues as to most effective way to achieve this objective. The data used in the methodology are secondary data, linear multiple regression was used, the variables used are GDP, total savings, private consumption expenditure and rate of inflation. The study concludes that no poverty alleviation programme in any country would be successful without controlling corruption, government waste, showing transparency, accountability and effective leadership, these without are among the myriad of issues facing Nigeria today. This paper recommends the necessity to minimise the effects of years of mismanagement, mounting foreign debt and low credibility rating with foreign investors and strengthen the existing poverty alleviation institutions among others*

**Keywords:** Determinants, Poverty, Measurement, Economy

**JEL** **Codes**: 132

**1. Introduction**

It is hard to discuss poverty especially urban poverty without focusing on slums, as they often include most poor people in cities in the developing world, “United Nations Habitat” has developed a cross-nationally applicable definition. A set of people living under the same roof in urban areas that lack on e or more of the following: access to improved water services, structural quality or durability of housing, security etc are defined to be living in slums or informal settlements (United Nations Habitat, 2016). How long will it take for economic growth to eradicate poverty? This question is at the heart of the on-going debate about inclusive growth and equitable development. Okun’s equity-efficiency trade-off, which for several decades seemed to override fairness concern, has recently lost ground to a renewed focus on “pro-poor growth” (World Bank, 2005) and “shared prosperity” (World Bank, 2015). Poverty is one of the intractable problems facing mankind today. In 1995, an estimated 1.3 billion people out of the estimated 5.8 billion people in the world were living in the shackles of extreme poverty, living on less than one dollar a day (Human Development Report, 1998)

Poverty is a plague-affecting people all over the world and it is a condition that denies individuals the right to exercise their full potentials. There is no universally accepted definition of poverty, but poverty can be defined as having insufficient income to meet the basic human needs of life. If the real national income of a country is small that country will be poor, and a higher standard of living for its people can be achieved only by an increase in the total volume of production. Poverty has often been defined as a situation of low income or low consumption.

Essentially, it is not difficult to recognize the poor. The poor are those who are unable to obtain adequate income, find a stable job, own properties or maintain healthy living condition. They also lack an adequate level of education, cannot satisfy their basic health needs and their minimum basic needs of food, clothing and shelter. Poverty amidst plenty is a striking feature of the Nigerian scene. Nigeria is the richest in the continent yet millions of her people are poor. According to the Human Development Report (1998), Nigeria is one of the 25th poorest countries in the world and more than one third of her populace is not expected to survive beyond the age of 40. This is not the Nigerian dream. It is the Nigerian paradox. Poverty is a more serious problem in our society than in societies with much less income and wealth. Poverty amidst poverty is easier to understand and even condone but in a land of abundance, it is difficult to comprehend why some people are inadequately fed, clothed and sheltered. Poverty is a reality that needs to be studied, understood, appreciated and then eradicated.

The proportion of poverty is often determined by the poverty line, usually based on the level of income or consumption expenditure by households, although poverty is felt and observed especially by the poor themselves. Poverty can be identified in two ways: Absolute and Relative Poverty. If the physical human subsistence that is nutrition, clothing and housing is not guaranteed, it can be referred to as Absolute Poverty and Relative poverty refers to a person or household whose provision with goods is lower than that of other persons or households.

Absolute and Relative poverty can also be seen from two perspective microeconomics and macroeconomics. In micro economics terms, poverty refers to a situation in which individual persons or households are not able to satisfy their basic needs. From a macroeconomics perspective, poverty exists when the average inhabitants of a country live below the minimum subsistence level. Thus, while the macroeconomics concept specifies the country, micro economics perspective is concerned with households or individuals.

Finally, the indicators of poverty in Nigeria will remain alarming. Poverty alleviation in Nigeria requires among other strategies, the access of the poor to productive assets, the raising of their returns on the assets, increasing their access to education and health services, improving their employment opportunities and supplementing their resources with income or resource transfer.

*Research Problem Statement*

Poverty in Nigeria has continued to growth worse and wide spread. Despite the institutionalization of several poverty alleviation programmes, which are not universal, many have performed below expectation due to insincerity of purpose on the part of the government, bureaucracy and inability to distinguish between economic development planning and social development planning.

Firstly, the degree of inequality in the Nigerian economy and its effects on the overall performance of the economy need to be highlighted. This shows fully the extent of poverty and reflects how easily the rich are getting richer while the poor are getting poorer thus widening the inequality gap.

Secondly, the effectiveness of government programmes towards poverty alleviation needs to be examined. This helps reflects how concerned the government is in the area of eradicating poverty and how fully the policies adopted are implemented to ensure a measurable size of poverty eradication in the overall economy through employment of efficient work force and encouraging them through a good wage system.

Thirdly, the problem of the determination of the magnitude of poverty in the Nigerian economy and how it is been affected by total savings, private consumption expenditures and inflation rate. This problem exposes the ugly situation of the Nigerian economy in terms of poverty and its overall effects on local consumption of Nigerians, their savings due to reduced income in form of wages and investing power of Nigerians since the little earned goes to consumption.

Therefore, the relevant problem which the study seeks to find solution to is the degree of inequality in the Nigerian economy, ineffective government programmes towards poverty alleviation and determination of the magnitude of poverty in the Nigerian economy.

*Objectives of the Study*

The general objective of this paper is to highlight how economic indicators can contribute to our understanding of the nature and causes of poverty among various socio-economic groups in Nigeria. Specific objectives of the research include the following. To:

1. Highlight the degree of inequality in the Nigeria society and its implication on the overall economy.

ii. Examine the relative effectiveness of government programmes towards poverty alleviation.

iii. Determine how total savings, private consumption expenditures and inflation rate affect the magnitude of poverty in the Nigerian economy.

*Statement of Research Hypothesis*

The following hypotheses were determined for testing:

i. HO: That the degree of inequality in the Nigerian economy does not have an implication on the overall performance of the economy.

ii. HO: That the government programmes are not effective in the alleviation of poverty in the Nigerian society.

iii. HO: That total savings, private consumption expenditures and inflation rate will not affect the magnitude of poverty in the Nigerian economy.

**2. Literature Review and Theoretical Framework**

*Concept and Nature of Poverty in Nigeria*

A concise and universally accepted definition of poverty is elusive largely because it affects many aspects of the human conditions, including physical, moral and psychological. Different criteria have, therefore, been used to conceptualize poverty.

Most analyses follow the conventional view of poverty as a result of insufficient income for securing basic goods and services. Others view poverty, in part, as a function of education, health, life expectancy, child mortality etc. It is hard to discuss poverty especially urban poverty without focusing on slums, as they often include most poor people in cities in the developing world, “United Nations Habitat” has developed a cross-nationally applicable definition. A set of people living under the same roof in urban areas that lack on e or more of the following: access to improved water services, structural quality or durability of housing, security etc are defined to be living in slums or informal settlements (United Nations Habitat, 2016). How long will it take for economic growth to eradicate poverty? This question is at the heart of the on-going debate about inclusive growth and equitable development. Okun’s equity-efficiency trade-off, which for several decades seemed to override fairness concern, has recently lost ground to a renewed focus on “pro-poor growth” (World Bank, 2015) and “shared prosperity” (World Bank, 2015).

Klein, Kneib, Lang, Solin (2015) in the Bayesian frame work, allow the form of the income distribution (and thus poverty rates and inequality measures) to vary with individual or household characteristics, by allowing for regression effect of all parameter (not just location scale) of the income distribution.

Blackwood and Lynch (1994), identify the poor, using the criteria of the levels of consumption and expenditure.

Further, Sen (1983), relates poverty to entitlements which are taken to be the various bundles of goods and services over which one has command, taking into cognizance the means by which such goods are acquired (for example, Money and Coupons etc) and the availability of the needed goods. Yet, other experts see poverty in very broad terms, such as being unable to meet “basic needs” – (physical; (food, health care, education, shelter etc. and non–physical; participation, identity, etc) requirements for a meaningful life (World Bank, 1996).

Poverty can be structural (chronic) or transient. The former is defined as persistent or permanent socio-economic deprivations and is linked to a host of factors such as limited productive resources, lack of skills for gainful employment, endemic socio-political and cultural factors and gender. The latter, on the other hand, is defined as transitory and is linked to natural and man- made disasters. Transient poverty is more reversible but can become structural if it persists. It is generally agreed that in conceptualizing poverty, low income or low consumption is its symptom. This has been used for the construction of poverty lines.

Various theories have been advanced in order to put in proper perspective the mechanics of poverty. The orthodox Western views of poverty, reflected in the “Vicious circle” hypothesis stating that a poor person is poor because he is poor, and may remain poor, unless the person’s income level increases significantly enough to pull the person in question out of the poverty trap. To the classical school of thought, such improvement can only be real and sustained, if and only if, the population growth is checked and the “limits of growth” are eliminated. Further, the early classical theorists in the attempt to illuminate on the concept of poverty based their analytical framework on the laws of diminishing returns which was believed to be universal in content although this was later upgraded at the time of Alfred Marshall and his contemporaries when the law of increasing returns in industry was more clearly articulated.

Following Deng (1995), we can therefore categorize the following as poor especially in the Nigerian context

1. Those households or individuals below the poverty level and whose incomes are insufficient to provide for their basic needs.
2. Households or individuals lacking access to basic service, political contacts and other forms of support, including the urban squatters and “street” children.
3. People in isolated rural areas who lack essential infrastructures
4. Female-headed households (especially with pregnant women and mother’s who are breastfeeding) and infants whose nutritional needs are not being met adequately.
5. Persons who have lost their jobs and those who are unable to find employment (such as school leavers and tertiary education graduates) as a result of economic reforms introduced under Structural Adjustment Programmes (SAPs) and those who are in danger of becoming the new poor.
6. Ethnic minorities, who are marginalized, deprived and persecuted economically, socially, culturally and politically.

*The Incidence of Poverty in Nigeria*

In a recent survey (1996) carried out by the Federal Office of Statistics (FOS) and published by the World Bank under the auspices of the National Planning Commission (NPC), titled *‘Poverty and Welfare in Nigeria 1997’*. Nigeria’s festering poverty profile was described as “widespread and severe”. In a comparative analysis of welfare the Report ranked Nigeria below Kenya, Ghana and Zambia and expressed concern over the dwindling purchasing power of the people and the increasing income inequality in Nigeria which have made life unbearable for the citizenry despite improved inflation rate”.

Available statistics at the national level shows that poverty level in Nigeria has been extremely high, with about two thirds of the people below the poverty line in 1996. This situation might have been worse but for the damping effect the period 1985 to 1992 had on poverty, when the rising trend of the earlier period was reversed, before the upward movement resumed again. Specifically, poverty level went up 50% between 1980 and 1985, going from 28.1% to 46% between 1985 and 1992, there was a drop of about 4 percent points to 42.7%. However, by 1996, the level jumped up to 65.6%, an increase of more than 50% of the 1992 figures. Comparatively, the level skyrocketed to 71.6% in 2000.

In absolute figures however, the population in poverty continued to rise over the 16-year period. Despite the drop in poverty level in 1992, high population growth resulted in an increase of about 5 million in the population in poverty over the period 1985-1992 the estimated number of the poor therefore rose from 18 million in 1980 to 35 million in 1985, to 39 million in 1992 and to 67 million in 1996.

The movement in the per capital household expenditure (PHE) over the period determined this pattern of poverty. After normalizing for inflation the figures revealed that PHE for 1996 was not only lower than for other years, but was less than half of 1980 (PHE). The figures (in 1996 prices) were N2400 for 1980, N1270 for 1985, N1780 for 1992 and N1050 for 1996.

Over the 16-years period, poverty on sectoral disaggregation was at a higher level in the rural than in the urban. But the gap in the levels fluctuated, indicating that the two sectors had different experiences in the period. The gap was 11 percentage points in 1980, 13 percentage points in 1985, 8 percentage point in 1992 and 11 percentage point in 1996.

Urban poverty moved from 17.2% in 1980 to 37.8% in 1985 but remained at the same level in 1992. By 1996 it had risen sharply to 58.2%. Whereas, rural poverty rose rapidly between 1980 and 1985, the figures being 28.3% in 1980 and 51.4% in 1985. There was a decrease of about 5 percentage points between 1985 and 1992 but there was a big jump from the 46% in 1992 to 69.3% in 1996 while it recorded astronomical figure of 75.4% in 2000.

Household size had the most dramatic effect on poverty levels. The larger the household size, the greater the chances of that household being in poverty. Single-person households were virtually all out of poverty in 1980, the percentage of poor being at 0.2%. On the other hand, four fifths of households containing 20 or more persons live in poverty at the same time. This pattern of increase in poverty level as household size increase was maintained in the four survey years, although there was a scalar movement in the poverty levels of all size classes over the years. Thus, by 1996, poverty level for one-person households was 12% while for households with 20 or more the figure was 92%.

Over the 16-year period 1980 to 1996, female-headed households were slightly better off, poverty wise, than their male counterparts. In 1980 the poverty levels were 26.9% and 29.2% respectively, a gap of 2 percentage points in 1992. However, the gap widened again to 8 percentage points in 1996. By 2000, the proportion heightened to 63.4%.

The analysis showed that the major factor leading to this result is the fact that the average size of female-headed households is generally smaller than that of their male counterparts. Consequently, the per capital consumption (which is the basis of poverty computation) in female-headed household is higher than that of male headed households. However, the comparison here is in respect of the gender of heads of household and not the gender of all persons in general.

Although, there was a broad pattern of lower poverty level for higher level of education of the head, however, the discrimination was not very sharp. In 1996, the poverty levels ranged from 72.6% for heads with no schooling or primary school uncompleted to 49.2% for heads with post-secondary education. But as it was for gender, so it is here. The comparison is in respect of the education level of the head of household and not that of all persons. Relatively, the figure ranged from 60.1% to 80.1% in 2000.

Poverty level rose with the age of the head of the household, reaching a peak in the age group 55-64 years and thereafter declined. In 1996, the peak was in the age group 45-54 years.

Indeed, in terms of quality of life, deterioration in income, unemployment and poor social infrastructures, the poor have become poorer between 1985 and 1997. The CBN survey on poverty assessment while complementing the earlier work by the World Bank shows that the decline in poverty observed between 1985 and 1992 has been reversed in 1997. Although, skill acquisition is a prerequisite for gainful employment, high incidence of poverty among educated Nigerians reflect problems of unemployment and low wage levels. Even among those in regular or self-employment, those living below poverty line account for about 30.0 and 25.0 percent, respectively. Another significant development is the redistribution of poverty occupational categories. In spite of the fact that poverty is more prevalent in the rural areas, the proportion of farmers in the population of those who live below poverty line has declined progressively from 86.6 percent in 1985 to 67.4, 33.3 and 22.6 percent in 1992, 1997 and 2000, respectively. But the civil service, corporate establishment and trading (or informal) sector which accounted for about 11.1 and 22.3 percent of the poor in 1985 and 1992, respectively, now harbour about 52.5 percent and 60.1 in 1997 and 2000 respectively. This reflects the impact of falling real wages and inaccessibility to social services on the living standard of the people.

*Poverty Incidence in Nigeria 1980-2000*

| National | 1980 | 1985 | 1992 | 1996 | 2000 |
| --- | --- | --- | --- | --- | --- |
|  | 28.1 | 46.3 | 42.7 | 65.6 | 71.6 |
| *Sector* |  |  |  |  |  |
| Urban | 17.2 | 37.8 | 37.5 | 58.2 | 67.1 |
| Rural | 28.3 | 51.4 | 46 | 69.3 | 75.4 |
| Sex of Head |  |  |  |  |  |
| M – Headed | 29.2 | 47.3 | 45.1 | 66.4 | 72.1 |
| F – Headed | 26.9 | 38.6 | 39.9 | 58.5 | 63.4 |
| *Size of House Hold* |  |  |  |  |  |
| 1 person | 0.2 | 0.7 | 2.9 | 13.1 | 15.1 |
| 2-4 persons | 8.8 | 19.3 | 19.5 | 51.5 | 61.3 |
| 5-9 persons | 30 | 50.5 | 45.4 | 74.8 | 82.5 |
| 10-20 persons | 51 | 71.3 | 66.1 | 88.5 | 90.4 |
| 20 plus | 80.9 | 74.9 | 93.3 | 93.6 | 94.2 |
| *Education of Head* |  |  |  |  |  |
| No education | 30.2 | 51.3 | 46.4 | 72.6 | 80.1 |
| Primary | 21.3 | 40.6 | 43.3 | 54.4 | 69.3 |
| Secondary | 7.6 | 27.2 | 30.3 | 52 | 70.3 |
| Post Secondary | 24.3 | 24.2 | 25.8 | 49.2 | 60.1 |
| *Age of Head* |  |  |  |  |  |
| 15-24 | 16.2 | 25.3 | 28.7 | 37.4 | 46.5 |
| 25-34 | 17.8 | 33.4 | 28.5 | 52.7 | 61.2 |
| 35-44 | 26.7 | 46 | 42.1 | 64.6 | 69.3 |
| 45-54 | 27.1 | 55.7 | 48.2 | 69.9 | 74.8 |
| 55-64 | 39.7 | 55.7 | 48.2 | 69.9 | 74.8 |
| 65 plus | 28.8 | 49.1 | 49.5 | 68 | 70.5 |

*Source: Poverty Profile of Nigeria, NBS, 2001*

*Distribution of Poverty by Occupational Category of Household Heads 1985 – 2000*

| Occupational category | Percentage of the respondents | | | |
| --- | --- | --- | --- | --- |
|  | 1985*/1* | 1992*/2* | 1997 | 2000 |
| Farming | 86.6 | 67.4 | 33.3 | 22.6 |
| Trading and Artisans | 4 | 10.2 | 19.2 | 23.1 |
| Public services | 3.7 | 10.7 | 29 | 30.2 |
| Corporate Units | 3.4 | 5.4 | 4.3 | 4.6 |
| Student/Apprentice | 0.1 | 3.9 | 6.4 | 8.1 |
| Others | 2.2 | 2.4 | 7.8 | 11.4 |
| Total | 100 | 100 | 100 | 100 |

*Sources: Nigeria: Poverty in the Midst of Plenty; A World Bank Poverty Assessment Report; CBN survey on Poverty Assessment in Nigeria, 2001*

*The Effect of Poverty*

The effects of poverty on Nigerians are multidimensional. That is to say, it has negative influences amongst others on the socio-cultural, economic, political, moral, health, security and educational lives of the people. Using the multi-dimensional schematic framework of underdevelopment, the effects of desolate poverty manifest in: low per capital income, low consumption level, poor health services, high death rate, high birth rate, vulnerability to dependence on foreign economy, limited freedom to choose between variables that satisfy human wants, poor educational and other social services with its attendant consequences of lack of shelter, homelessness, hunger both f the body and mind, malnutrition (which could lead to kwashiorkor), target for diseases and sickness, short life expectancy, mental retardation, social outcast and political alienation, to mention but a few.

This situation, which is a self-reinforcing phenomenon, tends to perpetuate undesirable consequences, which lead to abject poverty and underdevelopment of the nation.

*Reasons for Failure of the Poverty Alleviation Programmes*

Issues concerning poverty and employment are essentially those concerning the core of economic development. Thus to probe the failure of Poverty Alleviation Programmes is to addresses the larger question concerning Nigeria’s development laggardness. Time and space will not allow this extensive probe and therefore efforts will be limited to what we consider the key direct and indirect causes of the failure of poverty crises policy interventions. The long list of the factors may include the following:

i. Flawed Economic Policy Regimes

ii. Poor Growth Record

iii. Collapse of Investment and Crisis of Financial Intermediation

iv. Problems of the Informal Economy

v. Infrastructural Failure

vi. Mismanagement of the Human Capital

vii. Societal Indiscipline and Good Governance Deficit

viii. External Constraints and Failure to Adopt International best Practice

ix. Inherent Structural Defects of Poverty Alleviation Programmes

* 1. Inadequate Targeting
  2. Inadequate Coordination
  3. Inadequate or Lack or Executive Capacity:
  4. Top-Down Approach:

*Structural Composition*

The first attempt to measure poverty was made more than a century ago (Booth, 1889; Rowntree, 1901). These attempts were at the household level and much still is. Basically, poverty measurement is usually undertaken to:

1. Determine a yardstick for measuring standard of living.
2. Choose a cut-off poverty line, which separates the poor from the non-poor (indication of how many people are poor).
3. Take account of the distribution of standard of living among the poor.
4. Comparison of poverty over time, among individuals, group or nations.
5. Guide policy on poverty alleviation.

Measurement of poverty is complex and varied, hence any discussion of poverty measure must commence with the simple living standard measure and poverty line determination.

*Living Standard:* This is generally measured using current consumer spending or income. A measure of current consumer spending is generally preferred to income as a measure of current living standards. Alderman and Paxson (1992), Deaton (1992). Further, income as a measure of living standards is often questioned on the ground of incorrect rendition by the respondents. On balance, consumption expenditure is preferred to income as a measure of living standard.

*Poverty Line*

A poverty line can be defined as the monetary cost to a given person, at a given place and time, of a reference level of welfare.

*i. Objective Poverty Line*: Objective poverty line approaches can be interpreted as attempts to anchor the reference utility level to attain basic capabilities, of which the most commonly identified relate to the adequacy of consumption for living a healthy and active life, including participating fully in the society. Sen (1985, 1987). Two methods of measuring objective poverty line are food energy intake and cost of basic needs.

*-The food-energy Intake Method:* A popular practical method of setting poverty line involves finding the consumption expenditure or income level at which food energy intake is just sufficient to meet pre-determined food energy requirements.

**-***The cost-of-basic-needs method:* This method stipulates a consumption bundle adequate for basic consumption needs, and then estimates its cost for each of the subgroups being compared in the poverty profile; this is the approach of Rowntree in his seminal study of poverty in York in 1899, and it has been followed since in innumerable studies for both developed and developing countries.

*ii. Subjective Poverty Lines:* Subjective poverty line debate has opened another issue on poverty conceptualization and measurement. Psychologists, sociologists and others have argued that the circumstances of the individual relative to others in some reference group influence perceptions of well-being at any given level of individual command over commodities. By this view, “the dividing line… between necessities and luxuries turns out to be not objective and immutable, but socially determined and ever changing” (Scitovsky, 1978).

*Measures of Poverty In Nigeria*

Generally, the measures of poverty can be classified into two, namely absolute poverty and relative poverty.

1. Absolute poverty can be measured as follows.

*i. Head Count Ratio*: Poverty can be expressed in a single index: The simplest and most common measure is the Head Count ratio (H), which is the ratio of the number of poor to total population. The poverty head count (H) can be expressed as:

H = q/N………………………………..1

where:

q = the number of the poor and N = total sample population.

This gives the proportion of the population with income below the poverty line. The head count ratio has been criticized for its focus only on the number of the poor and being insensitive to the severity of poverty and to changes below the poverty line. That is, it treats all the poor equally, whereas not all the poor are equally poor.

*ii. The poverty gap/income shortfall ratio*: The poverty gap ratio or the income gap ratio is the difference between the poverty line and mean income of the poor, expressed as a ratio of the poverty line (World Bank, 1993). The average income shortfall (I) measure the amount of money it would take to raise the income of the average poor person up to the poverty line. That is, it provides a statement on the level of income transfer to the ‘poor’. If ya is the average income of the poor and z is the poverty line, then one measure of the depth of poverty, the income gap ratio is: taking the product of H and I will incorporate both the number of the poor and the depth of their poverty.

The poverty gap ratio can be expressed as:

………………………………2

Where:

Z = poverty line.

Ya = average income of the mean income of the poor.

*iii. Composite poverty measures*:

The Sen Index: This index is attributed to Sen (1976). It incorporates the headcount index, the income gap, and the Gini coefficient. Sen Poverty index (s) is:

S = H [I + (1 – I) Gp] …………………3

Where:

I = the average income shortfall as a percentage of the poverty line

y1 = income of the ith poor household

z = poverty line income

qz = number of households with incomes below z

H = q/n; headcount ratio

N = total number of households

Gp = Gini coefficient among the poor: 0 ≤ Gp ≤ 1.

S is an increasing function of the headcount index and an increasing function of the income shortfall. Given that the Gp ranges from zero to one, S is also an increasing function of Gp:

………………..4

The Sen Index has a major drawback. It is more responsive to improvements in the headcount than it is to reduction in the income gap or to improvements in the distribution of income among the poor. This index indicates that the efficient way to reduce poverty is to help the least needy first and the most needy last.

*iv. The physical quality of life index (PQLI):* The PQLI is attributed to Morris (1979). It measures how well societies satisfy certain specific ‘life-serving social characteristics’ or ‘achieved well-being’ (Doessel and Gounder, 1994). Thus its focus is on social development. The PQL is based on three indicators: infant mortality, life expectancy and basic literacy. Computationally, PQL is given by:

PQL = f (IM, e, lit) ……………………5

Where:

IM = infant mortality

e = life expectancy

Lit = literacy

The indices formed from these three indicators are summed up and the average gives the PQLI (physical quality of life index).

PQLI = (IMI +el + IitI) ………………..6

Where:

IMI = Infant mortality index

el = Life expectancy index

Lit = Literacy index

*v. The human development index (HDI):* The HDI is the most recent composite index devised by the United Nations Development Programme (UNDP, 1990). This index focuses on human development. It incorporates income and non-income factors. Three factors- longevity, knowledge and income are the variables of the index. Longevity is measured by life expectancy at birth (e0), knowledge is measured in terms of literacy.

The third variable is per capita income. Generally, therefore, UNDP’s human development HD is specified as:

HD = f (e0, lit, Y)

Where:

e0 = life expectancy at birth

lit = literacy rate

Y = per capita income

These three indicators-life expectancy (X1), literacy (X2), and the logarithm of real GDP per capita (X3) are specified at the national level as components of the index.

By looking across a range of countries, the maximum and minimum value for each indicator is established. A ‘deprivation’ index for the ith indicator and the jth country is then defined as:

Where: 0 < 1ij < 1

The UNDP (1990) defined the deprivation index for country j as a simple average of the three deprivation indices for the country and the human development index (HDI) one minus this average.

*2. Relative Poverty Measures:* Relative poverty measures define the segment of the population that is poor in relation to the set income of the general population. Such a poverty line is set at one-half of the mean income, or at the 40th percentile of the distribution. There are two main kinds of relative measures. Average income, this is the average income of the poorest 40 percent of the population and/or the average income of the poorest 10 or 20 percent of the population. The second is the number or population of people whose incomes are less than or equal to predetermined percentage of the mean income say 50% or less of the mean income.

*Determinants of Poverty in Nigeria*

There is no one cause or determinant of poverty. On the contrary, combination of several complex factors contributes to poverty. They include low or negative economic growth, inappropriate macroeconomic policies, deficiencies in the labour market resulting in limited job growth, low productivity and low wages in the informal sector and a lag in human resource development. Other factors which have contributed to a decline in living standards and are structural causes or determinants of poverty include increase in crime and violence, environmental degradation, retrenchment of workers, a fall in the real value of safety nets and changes in family structures. These are examined below:

*i. Low Economic Growth Performance*: Growth of the economy is a must for poverty reduction. In developing countries such as Nigeria growth that is employment generating and with export base is desirable in order to achieve growth that is poverty reducing with equity. Although the economic performance of countries in the World has generally been highly volatile since the early 1980s, on the whole, growth rates have been low or negative, with overall declines in several countries.

*ii Macroeconomic shocks and policy failure*:- This has been a major cause of poverty in several countries of the world. As many economies in the world faced macroeconomic disequilibrium, mostly in the balance of payments due to expansive aggregate demand policies, terms-of-trade shocks, and natural disasters, it become necessary to undertake major policy reforms. In the process such economies became vulnerable to poverty.

*iii Labour Markets Deficiencies*: The poor’s most abundant resource is their labour, a virile labour market is important to reducing poverty and income inequality. In most countries of the world the majority of poor households participate in the labour market in one way or another, and thus poverty is a problem of low wages (in the informal sector), low labour returns to rural self-employment activities, underemployment, and in some cases, protracted unemployment.

*iv. Migration*: Migration rates do reduce poverty especially when the majority of individuals who migrate are skilled workers. On the other hand, individuals who emigrate vacate jobs in labour markets. Thus, migration drains on skills. It reduces the pace of economic growth and thus slows the process of overall job creation and affects the long-run development potential in a country.

*v. Unemployment and underemployment:* Employment is a key determinant of poverty. Gainful employment is important for individual to earn income and escape from “income” poverty.

*vi. Human Resource Development:* This is key for human capital development and capability to escape from poverty. Continued investment in human capital with improvements in efficiency is necessary to sustain reduction in poverty changes in the labour market. Investment in people can boost the living standards of households by expanding opportunities, raising productivity, attracting capital investment, and increasing earning power: In addition, providing additional educational opportunities for adolescents may prevent some youths from becoming involved with gangs, drugs and violence, given the evidence linking the perpetrators of crime with school dropouts.

*vii Health/Diseases:* Good health is basic to human welfare and a fundamental objective of social and economic development. Poor health shackles human capital, reduces returns to learning, impedes entrepreneurial activities and holds back growth and economic development. Diseases cause poverty and vice versa.

*viii Debt burden:* In several developing countries of the world, debt burden is assuming increasing importance as a cause of poverty. In such countries servicing of the debt has encroached on the volume of resources needed for socio-economic development.

*ix Governance:* The persistence and pervasiveness of poverty in several countries has been linked to the lack of popular participation in governance and decision- marking as well as weak institutional base. This has led among other things to poor accountability, transparency in resource allocation, weak programme implementation and monitoring.

*x. Environmental Degradation:* Environmental degradation is a cause of accentuated poverty. At the same time, poverty itself can be a cause of environmental degradation.

*xi. Crime and Violence:* A steady increase in crime and violence has degraded the quality of life to a varying extent in many counties of the world. Although individuals of all socioeconomic groups are affected, the urban poor are particularly vulnerable to these social problems.

**3. Methodology and Model Specification**

*Method of Data Collection*

The researcher made use of secondary type of data which were extractions from journals, articles, National Bureau of Statistics and search machines.

*Methods of Estimation of Analysis*

In this research work, the method of estimation is based on the use of multiple regression technique using the regressand and regressor. The multiple regression model offers explanation on the relationship between an explained variable and two or more explanatory variable.

The relationship between Y and variables X1, X2, X3 … Xn is in econometric form. It can be expressed mathematically as

Y = F(X1, X2, X3…Xn)

If we want to change it to linear form, it then becomes

Y = b0 + b1X1 + b2X2 + b3X3+… bnXn …7

The coefficient b0 represents the intercept of the function while coefficients b1, b2, b3 … bn denotes the marginal effect of X1, X2 X3…Xn respectively on Y.

Economic theory does not allow for random elements which might affect the relationship between the dependent and independent variables. But in econometric model, the fluctuation in random element is taken of.

A random variable “U” known as error term is introduced into the model. This is because other important variables are omitted in the model. With the modification and introduction of error term (U), we have a functional form model of the form:

Y =b0+ b1X1+ b2X2 +b3X3…BnXn +U ….8

Least Square technique will be use to estimate the structural parameters: b0, b1, b2, b3…bn. This is because Least Square technique is the best linear unbiased estimate and the result will be unbiased. An estimator is preferred to others because it has least square property. The Least square estimator has been chosen because it is an estimator that generates a set of parameter estimates with the smallest error of the regression.

There are some assumptions of ordinary least square which must hold or else the above assertion will not hold. Therefore the following must be assumed for “U” for the estimation technique to hold. The assumptions of OLS are based on the distribution of stochastic error term.

1. Error term (U) is random and normally distributed.
2. The error term has zero expected value.
3. The error term has a constant variable.
4. The error term in one period is uncorrelated with the error term in another period.
5. The explanatory variables assume fixed values, so that they are uncorrelated with the error term.

In this research work we shall make use of key economic variables such as Gross domestic Product, total savings, private consumption expenditures and rate of inflation.

The econometric analysis of estimate will be carried out using statistical test for significance. These statistical tests include: the t-ratio, coefficient of multiple determination, F-statistic and Durbin-Watson test (DW).

The coefficient of determination (R2) examines the explanatory power of the independent variable. The F-statistic will also be used to determine the significance of the parameter of the estimates. The Durbin-Watson test is used to determine the incidence of autocorrelation or not.

*Specification of the Model*

Y = F (X1, X2, X3) under the hypothesis that:

HO: B0 = B1 =B2 = B3 = 0

HA: B0 **≠** B1≠ B2 ≠ B3 = 0

And where:

Y = Gross Domestic Product;

X1 = Total Savings;

X2 = Private Consumption Expenditure;

X3 = Rate of inflation.

From the above the null hypothesis (HO) states that values of the estimated parameters are not significantly different from zero, which is our theoretical expectation.

*Econometric Model Estimation*

Thus in line with the econometrics, the study will use multiple regression analysis to investigate that:

GDP=b0+b1X1+b2X2+b3X3+U.

This was regressed following a stepwise direction in the following ways:

*Model 1*

GDP = b0 + b1 X1 + U where;

GDP = Gross Domestic Product

b0 = Intercept of the line

b1 = Coefficient of X1

U = Error term

The model waas used to examine the impact of total savings (as a basis for the degree of income inequality) on the overall performance of the economy.

*Hypothesis of the Model*

HO: The degree of income inequality in the Nigerian economy does not have effect on the overall performance of the economy.

*Model 2*

GDP = b0 +b1X1 + b2 X2 + U where

b2 = Coefficient of X2

The model was used to examine the impact of total savings and consumption expenditures as a basis for measuring the relative effectiveness of government programmes towards poverty alleviation.

*Hypothesis of the Model*

Ho: The government programmes are not effective in the alleviation of poverty in the Nigerian society.

*Model 3*

GDP = b0 + b1X1 + b2X2 + b3X3 + U where

b3 = coefficient of X3

The model was used to examine the effect of total savings, consumption expenditures and inflation rate on the magnitude of poverty in the economy.

*Hypothesis of the Model*

HO: Total savings, inflation rate and private consumption expenditures will not affect the magnitude of poverty in the economy.

*A Priori Expectation*

1. The sign of b1 is expected to be positive since a positive relationship exists between savings level and the value of Gross Domestic Product.
2. The sign of b2 is also expected to be positive since a direct relationship exists between private consumption expenditures and Gross Domestic Product.
3. Similarly, the sign of b3 is expected to be positive since a direct relationship exists between rate of inflation and gross domestic product.

*Specification Bias*

The models used in this research have been specified in line with basic economic theory. But economic theory does not allow for random element which might cause some problems and inconsistencies in our result and interpretation. This is because there are some important variables that should have been included in the models. Hence the inclusion of error term “U” in the model which helps to modify the models is necessary because:

1. Omission of relevant variables as a result of measurement error and inherent human randomness may be taken care of by error term ”U”
2. Inconsistency in the aggregate data and poor collection of data in developing countries.

**4. Data Analysis, Results and Interpretation of Results**

*Specification of Data*

The data analysed varied from 1987- 2007 which covers a period of twenty one years.

| Year | Gross Domestic Product  At Current Market prices (Y)  N Million | Total Savings (X1)  N Million | Private Consumption Expenditures (X2)  N Million | Rate of Inflation (%) (X3) |
| --- | --- | --- | --- | --- |
| 1987 | 203,037.1 | 18,676.3 | 79,628.3 | 10.2 |
| 1988 | 275,198.2 | 23,249.0 | 113,013.3 | 38.3 |
| 1989 | 403,762.9 | 23,801.3 | 136,569.7 | 40.9 |
| 1990 | 497,351.3 | 29,651.2 | 169,309.2 | 7.5 |
| 1991 | 574,282.1 | 37,738.2 | 218,692.8 | 13.0 |
| 1992 | 909,754.2 | 55,116.8 | 396,156.5 | 44.5 |
| 1993 | 1,132,181.2 | 85,027.9 | 529,623.6 | 57.2 |
| 1994 | 1,457,129.7 | 108,460.5 | 686,989.8 | 57.0 |
| 1995 | 2,991,941.7 | 108,490.3 | 1,517,235.9 | 72.8 |
| 1996 | 4,135,813.6 | 134,503.2 | 2,331306.8 | 29.3 |
| 1997 | 4,300,209.0 | 177,648.7 | 2,401,595.9 | 8.5 |
| 1998 | 4,101,028.3 | 200,065.1 | 2,712,511.3 | 10.0 |
| 1999 | 4,779,966.0 | 277,667.5 | 2,089,505.3 | 6.6 |
| 2000 | 6,850,228.8 | 385,190.9 | 2,331,878.2 | 6.9 |
| 2001 | 7,055,331.0 | 488,045.4 | 4,225,976.9 | 18.9 |
| 2002 | 7,984,385.3 | 592,094.0 | 5,805,085.9 | 12.9 |
| 2003 | 10,136,364.0 | 655,739.7 | 4,979,560.0 | 14.0 |
| 2004 | 11,673,602.2 | 797,517.2 | 5,372,560.0 | 15.0 |
| 2005 | 3,643,059.7 | 1,078,330.1 | 3,613,115.6 | 17.9 |
| 2006 | 4,636,148.7 | 1,604,174.5 | 4,335,625.3 | 8.2 |
| 2007 | 22,586,710 | 2,500,159.9 | 5,095,795.7 | 5.4 |

*Source: National Bureau of Statistics (NBS) and Central Bank of Nigeria (CBN); Note: Figures for Private Consumption Expenditures from 2005-2007 were derived using the 4-point Moving Averages.*

*Interpretation of the Regression Results*

In this section the model is analysed in details. In presenting the estimated equations, the figures in parenthesis represent t-ratios.

*Model 1*

GDP = BO + B1X1 + U

GDP =1689812.0 + 6.912X1

R2 =0.672, Adjusted R2 =0.655, F = 39.004

DW=1.396 (2.020)(6.245) N= 21

*Model 2*

GDP = BO **+** B1X1 + B2X2 + U

GDP = 208639.46 + 4.360X1 + 1.120X2

R2 =0.761, Adjusted R2 =0.735, F= 28.692

DW= 1.893 (0.224)(3.151)(2.587) N=21

*Model 3*

GDP = BO **+** B1X1 + B2X2 + B3U

GDP = 263183.14 + 4.352 X1 + 1.114 X2  -1605.091X3

R2  = 0.761 Adjusted R2 =0.719 F= 18.069

DW =1.894 (0.172)(3.034)(2.412)(-0.046) N=21

*Interpretation and Analysis of Results*

*Model 1*

This model examine the impact of total savings (as a basis for the degree of income inequality) on the overall performance of the economy. From the result R2 is 0.672 which shows that total savings will affect the overall performance of the economy to the tune of 67% within the period being studied. The adjusted R2 also shows a positive relationship of 65% while F-statistic is 39.004 and DW is 1.396 which falls within the acceptance region and shows no presence of autocorrelation. Therefore the hypothesis that the degree of income inequality in the Nigeria economy will affect the overall performance of the economy is accepted.

*Model 2*

Model 2 examines the effectiveness of government poverty alleviation programmes using total savings and private consumption expenditures as a yardstick. The two variables combined together gave R2 of 76% which implies a 9% increase as compared to model 1.This means that total savings and private consumption expenditures combined will affect the level of poverty to the tune of 76%. However adjusted R2 increases to 74% while F-statistic is 28.692 and DW is 1.893 showing no autocorrelation. The decrease in the value of F-statistic means that there might be some hidden parameters unknown to the researcher but one fact stands out that there exists a positive relationship between total savings and private consumption expenditures and the level of poverty in the economy. Thus the hypothesis that the government programmes are not effective in the alleviation of poverty in the Nigerian economy is accepted.

*Model 3*

This model examines the effect of total savings, private consumption expenditures and inflation rate on the magnitude of poverty in the economy. R2 is 0.761 which shows that the three variables combined will affect the poverty level to the tune of 76%. Both values for the adjusted R2 and F-statistic decrease to 0.719 and 18.069respectively in contrast to their values in model 2. The adjusted R2 of shows a positive relationship among the variables while the DW means that there is no autocorrelation. Therefore the hypothesis that total savings, private consumption expenditures and inflation rate will have effect on the magnitude of poverty in the economy is accepted.

4.1 Empirical Results

| Models | R2 | Adjusted R2 | F-Statistic | DW | T | T Sig |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | 0.672 | 0.655 | 39.004 | 1.396 | 2.020,  6.245 | 0.058,  0.000 |
| 2 | 0.761 | 0.735 | 28.692 | 1.893 | 0.224,  3.151,  2.587 | 0.825,  0.006,  0.019 |
| 3 | 0.761 | 0.719 | 18.069 | 1.894 | 0.172,  3.034,  2.412,  -0.046 | 0.866,  0.007,  0.027,  0.964 |

4.2 Interpretation of A priori Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variables | Slope | A priori | Results | Conformity |
| B1 | 4.352 | + | + | √ |
| B2 | 1.114 | + | + | √ |
| B3 | -1605.091 | + | - | X |

*Key: √ = Conformity; X = Non-conformity*

**5. Summary, Conclusion and Recommendations**

*Summary of Major Findings*

This research work has examined the measurement and determinants of poverty in the Nigerian economy. It has also analysed the consequences of poverty on the overall performance of the economy.

Poverty incidence is significantly greater and the depth of poverty deeper in rural areas. About 63% of people living in the rural areas are poor, compared with 42% in urban areas. The primary livelihood of the rural populace is agriculture (85%); the majority of the farmers are uneducated, and they use few inputs to support their farming. For many in Nigeria, life has been stagnant for decades.

Poverty in Nigeria seems to have worsened over the 1990s, and then reduced in the early part of this century. However, population growth rates have meant a steady increase in the number of poor from 39 million in 1992 to 69 million in 2004. Specifically, the following were observed during the course of this work:

1. There is no one cause of poverty but combinations of several complex factors contribute to poverty. They include low or negative economic growth, inappropriate macroeconomic policies, deficiencies in the labour market resulting in limited job growth, low productivity and low wages in the informal sector and a lag in human resource development. Other factors which have contributed to a decline in living standards and are determinants of poverty include increase in crime and violence, environmental degradation, retrenchment of worker, a fall in the real value of safety nets and changes in family structure.
2. Although various approaches have been tried to fight poverty, not much has been achieved as evidenced by the rising trends of poverty throughout the country.
3. For poverty reduction, economic growth is a necessity but not a sufficient condition. Hence, for growth to be an effective strategy, it has to be accompanied by a deliberate provision of enabling infrastructural environment that can sustain economic development.
4. For Nigeria to deal effectively with her poverty problems, it is crucial that sustainable long term solutions are devised to salvage the current trend. Fighting poverty is a daunting challenge that requires a multifaceted approach in line with the multi-dimensional nature of poverty.
5. The degree of income inequality in the Nigerian economy will have an effect on the overall performance of the economy. Despite the institutionalisation of several poverty alleviation programmes, many have performed below expectation due to insincerity of purpose on the part of government, bureaucracy and inability to distinguish between economic development planning and social development planning.

*Conclusion*

In conclusion, I wish to categorically state that until Nigeria do away with plastic policy options and cosmetic implementation and face the reality of poverty, any programme billed to address the issue (of poverty) will remain a myth of a utopian philosophy. And this will consequently, affect adversely the degree of development and growth in the country.

The adoption of people-oriented and pro-poor social policies, investment in rural areas and in agriculture, increase investment in information technology and health care, provision of non-interruptible electricity for cottage industries, good roads for distribution of goods and services, investment in human capital and skills training (and retraining) for jobs that are available are ways to assist in poverty alleviation. The leaders of Nigeria should develop a compelling vision that would create a sense of purpose in citizenry, teach the children the values of hard work, creativity and pride in our country and encourage and reward honesty. This will enable individuals to change their behaviours and actions that are inimical to the nation’s prosperity.

Finally, no poverty alleviation programme in any country would be successful without controlling corruption, government waste, showing transparency, accountability and effective leadership. These, without a doubt, are among the myriad of issues facing Nigeria today.

*Recommendations*

The multidimensional nature of poverty demands multifarious policy options, the recommendations include:

1. The necessity to minimize the effects of years of mismanagement, mounting foreign debt and low credibility rating with foreign investors;
2. Rehabilitate and provide infrastructural facilities;
3. Strengthen the existing poverty alleviation institutions.
4. Ensure political stability through democratic system which should provide good governance characterized by transparency and accountability;
5. Ensure macroeconomic stability and growth with development which is the first practical means of reaching the poor since without growth there can be no expansion which will create employment and increase income for distribution;
6. Institute policies which are directly focused on the poor such as: evolving schemes that would increase their productivity and wages through for instance increased supply of critically needed inputs and lay increased emphasis on making basic socio-economic infrastructure (education and health services, roads, potable water, and electricity) availability to the poor.

**References**

Afonja, B and Oguwimike, O. F (1995): Poverty; Meaning, Measurement and Causes: A Paper Presented at NCEMA.

Amina Khan, Paula Lucci,Tanvi Bhatkal (2018); Are we underestimating poverty?. Journal of World Development, World Developmet 103 (2018) 297 – 310. Content list available at ScienceDirect. Journal home page: www.elsevier.com/locate/worlddev

Ajakaiye, D. O and Adeyeye, V. A. “Concepts, Measurement and Causes of Poverty”, CBN Economic and Financial Review, vol. 39, No. 4.

Background Paper on Employment and Poverty Alleviation in Nigeria (2004) “Being a Paper Presented by Federal Ministry of Labour and Productivity for African Union Extraordinary Summit on Employment and Poverty Alleviation in Africa.

Bakare, I.A.O (2003) “Incidence of Poverty and Development in Nigeria”, LASU Journal of the Social Sciences, vol.4.

Bullion Publication of the Central Bank of Nigeria, Vol. 23, No.4, “Poverty Alleviation in Nigeria. Pp3-66, October/December 1999.

Central Bank of Nigeria: Statistical Bulletin 2007.

Filippo Domma, Francesca Condino, Sabrina Giordano (2018); A new formulation of the dagum distribution interms of income inequality and poverty measures.

Kehinde, O. Joseph (2006) “Poverty Alleviation Strategies and the Challenges of Governance in Nigeria: The Way Forward from Legion of Failed Policies”, International Journal of Social and Policy Issues vol.4, No 1 and 2.

Nigeria Millennium Development Goals (MDGs) Report (2006).

Nnaa, B. G. (2006) “Mythology of Poverty Eradication: The Nigerian Experience”, International Journal of Economic and development Issues; vol. 6, No. 2.

Publication of Nigerian Economic Society; Poverty Alleviation in Nigeria, Selected Papers for 1997 Annual Conference.

Victor E. Dike (2005), “The Global Economy and Poverty in Nigeria”.



# Earnings Persistence in the Post-SAS Period: The Case of Listed Firms in Nigeria

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**Abstract**

*The adoption of International Financial Reporting Standards (IFRS) in Nigeria represents the major changes in the financial reporting system in recent time. On the basis of this change, this study investigates whether the transition Statement of Accounting Standards (SAS) to IFRS has resulted in higher earnings persistence among the listed firms in Nigeria. The study utilizes secondary data obtained from annual reports of sample firms listed on the Nigerian Stock Exchange (NSE) from 2007 to 2016 and employs panel regression for all the analysis. The findings from the regression analysis reveal that IFRS adoption did not engender higher persistence of earnings in the post-adoption period.*

**Keywords:** Earnings persistence, IFRS, Statement of Accounting Standards, Nigeria Stock Exchange

**JEL Codes**: M41

**1. Introduction**

Prior to the wake of 2012, Statement of Accounting Standards (hereafter SAS) has been the basis of general purpose financial reporting in Nigeria. However, because of the need to bridge the gaps that existed in SAS and the desire to attract more investors (especially foreign investors), the Nigerian government made a pronouncement for the adoption International Financial Reporting Standards (hereafter IFRS) which has commenced since January 2012. Accordingly, listed firms in Nigeria began to disclose IFRS-based financial statement from the 2012 accounting year. Consequently, the adoption of IFRS in Nigeria represents the major changes in the financial reporting system in recent time with the adoption period spanning over five years already.

The International Accounting Standards Board (IASB) is the body saddled with the sole obligation of issuing IFRS (formerly known as International Accounting Standards) that are not only of high quality but acceptable to all nations and capable of promoting transparency in corporate reporting (Chebaane & Othma, 2014). To this end, the board which was created in 2001 has continued to pursue and promote this course of global acceptance and adoption to the extent that IFRS has become global financial reporting standards. The standards which are a principles-based set of standards with established rules as well as some dictates to specific treatments, represents the basis of corporate reporting for most nations in the globe.

Currently, IFRS is enjoying global acceptance since the year 2005 when it was first made mandatory in Europe as the basis of general purpose financial reporting. The twin factors influencing this global acceptance are the need for transparent reporting (De George, Li, & Shivakumar, 2016; Collett et al., 2001; Ahmed et al., 2013) and cross-border comparability (Daske & Gebhardt, 2006). Accordingly, prior studies document that IFRS-based financial statements are associated with higher accounting quality compared to financial statements based on local Generally Accepted Accounting Principles (GAAP). It is on this not that this study seeks to investigate whether earnings of listed firms in Nigeria exhibit higher persistence earnings subsequent to IFRS implementation. Examining the nexus between IFRS adoption and earnings persistence is important because the persistence of earnings is a consequence of company’s economic performance and a reflection of the quality of general purpose financial reporting basis (Dichev & Tang, 2009). It is on this note that extant studies utilize earnings persistence as a measure of earnings quality as anecdotal of evidence suggests that higher earnings quality is that which is not only sustainable but highly persistent. Consequently, investors rely more on earnings persistence for economic decisions (Chambers & Payne, 2011).

Studies on the consequences of IFRS implementation are paramount in Western countries where it was first launched with little studies in the developing countries. Accordingly, it is necessary to extend this line of research to developing nations such as Nigeria. This is important as Financial Reporting Council of Nigeria (FRCN) recently required its listed firms to disclose IFRS-based financial statement from the dawn of 2012. The outcome from this study will assist the council in gauging the consequence of her decision and to take proactive measures on future IFRS related issues. Therefore, this study enriches the existing literature on IFRS adoption worldwide as it further serves as a response to IASB’s call on the need to understand how IFRS affects each nation of the world.

The remaining portion of this study is structured as follows. Review of related literature and theoretical framework are presented first. The section that follows presents the study’s methodology and models specification. Results from data analysis and conclusions consecutively follow and the final section presents the recommendations of the study.

## 2. Literature Review and Theoretical Framework

## *Earnings Persistence*

Earnings persistence is the extent to which current earnings persist or repeat over periods of time (Hoang, Abeysekera, & Ma, 2015; Burnett et al., 2015; Parte-esteban & Garcia, 2014). According to Chambers and Payne (2011) both earnings persistence and its constituents measured the sustainability of future earnings by present earnings or its components. Firms with more persistent earnings have a more sustainable earnings/cash flow stream which is useful for valuation model (Dechow, Ge & Schrand, 2010). Consequently, extant studies support the notion that sustained earnings progress is an indication of higher earnings quality (Gu & Jain, 2005). This is why sustainability of earnings is seen as a necessary earnings quality by investors (Ewert & Wagenhofer, 2015).

Earnings persistence enhances the decision usefulness of earnings figures for both known and unknown investors. In this vein, most valuation models for predicting firm value are built with parameters of earnings persistence. Therefore the persistence of earnings does not only allow investors to forecast future earnings correctly but also firm value. Accordingly, the continuation of positive earnings trend is the anticipation of investors and such expectation would be attenuated whenever such trend is wrecked (Yao, 2015). Due to this greater importance of earnings persistence to investors, it becomes expedient to assess the consequence of IFRS implementation on the persistence of earnings especially that existing and potential investors are among the primary users of corporate financial statement (IASB, 2018). The next section converse on how the hypothesis of the study is developed.

*Empirical Review*

The adoption of IFRS in Nigeria represents major changes in the financial reporting system in the country with the aim of enhancing the quality of general purpose financial statements of its listed firms. Extant studies utilize different metrics of earnings quality to ascertain the effect of IFRS implementation on the quality of reported earnings. Results from these studies are mixed.

Utilizing earnings management models, Ismail et al. (2013) evenly match earnings quality of Malaysian companies before and after IFRS adoption by utilizing 4,010 firm-year observations. Their pre and post investigation results show that post-adoption earnings improves better. After utilizing earnings management model also, Krismiaji et al. (2016) provide proof of positive relationship between IFRS adoption and firms listed on Indonesian Stock Exchange. Kabir, Laswad and Islam (2010) utilize a period of eight years, 2002-2009 to assess the consequence of IFRS implementation on the accounts and the quality of earnings of 118 firms listed on New Zealand Stock Exchange. Contrary to the findings Krismiaji et al. (2016); Ismail et al. (2013), their result reveal that earnings management were significantly greater during IFRS regime compare to domestic standards regime indicating lesser earnings quality subsequent to IFRS adoption. Halabi and Zakaria (2015) examine how country-specific factors affect earnings quality in nations that mandatory implement IFRS from 2007 through 2011. Utilizing earnings management models, their findings suggest that IFRS application alone is inadequate in enhancing the quality of reported earnings when there is lack of strong regulatory institutions.

Also, studies that have utilize persistence of earnings as proxy for earnings quality provide evidence of conflicting results on the consequential impact of IFRS implementation on earnings persistence as some studies (like Liu & Sun, 2015) document evidence of higher persistence of earnings, other studies (like Doukakis, 2010) provide evidence of a decline in earning persistence after the adoption of IFRS. Employing period from 2002 to 2006, Doukakis (2010) utilizes a sample of companies quoted on the Athens Stock Exchange to examine the association between IFRS adoption and earnings persistence and its components. The findings from his study indicate that IFRS does not lead to higher persistence of earnings. In a more recent study, Liu and Sun, (2015) utilize earnings per share (EPS) to examine and compare the persistence earnings before and after the adoption of IFRS among 257 Canadian firms from 2008 to 2009. Their regression results reveal that post-IFRS earnings are more persistence compared to pre-IFRS earnings during the period of study.

*Theoretical Framework and Hypothesis Development*

Earnings are the excess of revenue over expenses which also mean income or profit. Among the important attributes of earnings, persistence of earnings stands out. Earnings that are more persistent indicate higher earnings quality (Ewert & Wagenhofer, 2015; Gu & Jain, 2005) which is desirable to both managers and investors. To investors, earnings persistence allow investors to value firm and forecast future earnings correctly as most valuation models for predicting future earnings and firm value are built with parameters of earnings persistence (Dechow, Ge & Schrand, 2010). To managers on the other hand, earnings are use as the gauge through which their efficiency and effectiveness in utilizing organisation resources are assessed. Therefore, earnings persistence offers the yardstick through which the success of managers is measured. Realising this fact, managers tend to manage earnings in several ways for the purpose of being adjudged as successful managers. When earnings are managed, the quality of such earnings is eroded thereby thwarting its decision usefulness.

Managers may continue to pursue the above purpose by engaging in earnings management (Laux & Leuz, 2009) in order to be adjudged successful. This engagement is highly detrimental to the interests of shareholders. In line with agency theory as propounded by Jensen and Meckling (1976) managers are view as the "agents" of shareholders, the "principals", resulting to agency relationship. In this relationship, management of the companies and decision-making are delegated to the agents by the principal. However, more often than not, the former do not decide in favour of the later which in most cases result to conflict of interest (Dion, 2016).

High accounting standards (which IFRS is) are needed to daunt managers from behaving opportunistically so that their interests will align with that of shareholders. IFRS is a high quality accounting standards capable of ensuring transparent reporting. Decision usefulness is the foundation upon which IFRS is built. When earnings are transparently disclosed, information users would be better placed in making rational decision about their stake in a given reporting entity. This suggests that when earnings are managed, they will affect the decisions of information users thus, contravening their essential objective. Therefore IFRS will ensure high persistent earnings which are useful to users especially, in resource allocation since persistence of earnings are regarded as an acute gauge as well as the core basis of capital markets’ information (Wang & Yang 2013).

Therefore, the adoption of IFRS in Nigeria is expected to result to high transparent reporting capable of leading to more earning persistent subsequent to its adoption. Though the discussions presented in the previous section provide evidence of conflicting result on the association between IFRS adoption and earnings persistence, we do not expect that the adoption to lead higher earnings persistent. This is because adopting firms were not given enough time to prepare for and be familiar with the complex standard, full of intricacies and difficulties (Jermakowicz & Gornik-Tomaszewski, 2006). Enough preparation time is needed as there was no voluntary application of IFRS in Nigerian before it was made mandatory. On the basis of this, we hypothesis that:

*H1: Adoption of IFRS in Nigeria does not significantly enhance earnings persistence of listed firms in Nigeria in the post-adoption period*

# 3. Methodology

## *Population of the Study and Data Source*

The population of the study cut across all firms listed on the Nigerian Stock Exchange (NSE) within the period under review. Due to the fact that the study considers two periods (SAS and IFRS), we apply four cleaning processes to sieve out firms that do not meet the econometrics models employed for sample size determination. These cleaning procedures include:

1. Firms listed under financial service sector were dropped from the sample,
2. Firms not listed throughout SAS and IFRS periods were dropped from the sample,
3. Firms that are suspended or delisted within the study period were dropped from the sample and
4. Firms associated with missing values for the variable used were dropped from the sample.

After applying the processes, the final sample firms utilized in this current study consist of 78 listed firms from which all the data employed in the study relates. Consequently, the secondary data collected were obtained from the financial statements of the 78 companies and from the official books of NSE for all the two periods considered. These periods are SAS period (2007 to 2011) and IFRS period (2012 to 2016). The period when SAS was in used is tagged “SAS period”. In contrast, the period from when IFRS becomes mandatory is tagged “IFRS period”.

*Model Specifications*

We employ three econometric models to investigate whether earnings of listed firms in Nigeria are more persistent subsequent to IFRS implementation. Model 1 offers the grounded model using Kormendi and Lipe (1987) method. Utilizing their method, the coefficient of earnings persistence is estimated for current year’s earning from previous year’s earnings from firm-level regression. In this model (3.1), the persistence of earnings is measured by the coefficient on lag earnings, *Earningsit-1*. The nearer this coefficient is to 1, the greater the magnitude of earnings persistence. However, the farther this coefficient is to 1, the lower the magnitude of earnings persistence.

Where:

*Earningsit* and *Earningsit-1* are current and lag-year earnings respectively scaled by the total amount of assets and measured by earnings before interest and tax. *ACCit-1* and *CFit-1* are lag year accruals and cash flow components of earnings respectively scaled by the total amount of assets. Cash flows are operating cash flows obtained from the statement of cash flow while accruals are measured as the difference between earnings before interest and tax and operating cash flow. *IFRSit* is a dichotomous variable measured as 1 for observations within IFRS period and 0 for observations in SAS period.

These methods are consistent with the approach of Hoang et al., (2015); Kamarudin, Ismail, & Samsuddin, (2012). We modified model 3.1 and included IFRS dummy, *IFRS,* in model 3.2 and interact it with *Earningsit-1* so as to capture the effect of IFRS adoption on earnings persistence. Consequently, the coefficient of interest in model 3.2 is which captures the interaction between earnings persistence and IFRS adoption. Expanding beyond the composite amount of earnings, we decomposed earnings into accruals and cash flows constituents as specified in model 3.3 and interacts each the two constituents (*ACCit-1* and *CFit-1*) with IFRS dummy so as to capture the effect of IFRS adoption on each earnings constituents. Therefore, *β4* and *β5* are the coefficients of interest in model 3.3. If earnings persist higher in the IFRS(SAS) period then, all coefficients of interest will be positive(negative). Higher earnings persistence is an indication of greater earnings quality. In contrast, transitory earnings on the other hand, is an indication of lower earnings quality.

# 4. Result and Discussion of Findings

## *Descriptive Statistics*

Table 4.1 presents the descriptive statistics in relation to the univariate time series metric variables of earnings and its components. As reveals by the Table, some sample firms during the period of the study made loss as shown by the minimum values of earnings and its components. However, the majority of the sample firms made profits during the period of the study as revealed by the mean values. This revelation is good for the measurement of earnings persistence.

Table 4.1: Descriptive Statistics

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Obs | Mean | Std. Dev. | Min | Max |
|  | 780 | 0.0836631 | 0.18243 | -1.872074 | 0.7926759 |
|  | 780 | 0.0720861 | 0.204273 | -2.847587 | 0.7163171 |
|  | 780 | -0.009587 | 0.214002 | -1.77089 | 2.228785 |
|  | 780 | 0.081673 | 0.177592 | -2.241023 | 0.9775165 |
|  | 780 | 0.500000 | 0.500321 | 0.000000 | 1.0000000 |
|  | 780 | 0.0416321 | 0.112357 | -1.27526 | 0.7163171 |
|  | 780 | -0.0041881 | 0.144631 | -1.280269 | 2.228785 |
|  | 780 | 0.0458202 | 0.132469 | -2.241023 | 0.6012321 |

***Note:*** *Earningsit and Earningsit-1 = current and lag-year earnings respectively scaled by total amount of assets and measured by earnings before interest and tax (EBIT). CFit-1 = cash flows from operations scaled by total amount of assets. ACCit-1 = total amount of accruals scaled by total amount of assets estimated as the difference between EBIT and CF. IFRSdummy = dichotomous variable measured as 1 for observations within IFRS period and 0 for observations in SAS period. The remaining variables are the interaction terms between IFRS and earnings and its components.*

Included in Table 4.1 are IFRS dummy and its interaction terms with previous year earnings and its components. The maximum values of these interaction terms indicate that a greater amount of profits were made during post-IFRS regimes.

## *Correlation Matrix*

Table 4.2 presents bivariate correlation among all the explanatory variables for possible detection of multicollinearity. In all, there is no concern for multicollinearity as the coefficients of each bivariate are less than the threshold of 0.8. To further confirm the absence of multicollinearity, we run a variance inflation factor (VIF) on these variables. The VIF of each variable is within the allowable threshold. However, due to brevity, the result of VIF test is not shown.

Table 4.2: Correlation Matrix

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Variables | A | B | C | D | E | F | G |
| A |  | 1 |  |  |  |  |  |  |
| B |  | 0.640 | 1 |  |  |  |  |  |
| C |  | 0.379 | -0.469 | 1 |  |  |  |  |
| D |  | 0.016 | 0.011 | 0.005 | 1 |  |  |  |
| E |  | 0.275 | 0.675 | -0.497 | -0.026 | 1 |  |  |
| F |  | 0.119 | -0.447 | 0.676 | 0.310 | -0.674 | 1 |  |
| G |  | 0.495 | 0.342 | 0.157 | 0.332 | 0.492 | 0.311 | 1 |

***Note:*** *Earningsit and Earningsit-1 = current and lag-year earnings respectively scaled by total amount of assets and measured by earnings before interest and tax (EBIT). CFit-1 = cash flows from operations scaled by total amount of assets. ACCit-1 = total amount of accruals scaled by total amount of assets estimated as the difference between EBIT and CF. IFRSdummy = dichotomous variable measured as 1 for observations within IFRS period and 0 for observations in SAS period. The remaining variables are the interaction terms between IFRS and earnings and its components.*

## *Regression Results*

Table 4.3 presents the output from the regression results in relation to earnings persistence as well as its components. We run two separate regressions. On the one hand, panel A presents the result of the first regression in relation to earnings as a whole. Panel B on the other hand presents the second regression result in relation to earnings components. Both panels include the coefficients of IFRS period and their respective interaction terms.

In relation to Panel A, as expected, the coefficient of *Earningst-1* is positive and statistically significant at 1% indicating that earnings of the sample firms are persistence. Though positive, the coefficient of IFRS dummy is not statistically significant. Regarding the variable of interest, *Ifrs\_Earningt-1* the coefficient of this variable is negative and statistically significant at 1%. This finding suggests that the adoption of IFRS does not improve earnings persistence of listed firms but rather worsen it indicating that earnings of pre-IFRS adoption period are more persistence compared to earnings of post-IFRS adoption period.

Table 4.3: Regression Results on Earnings Persistence

| Variablea | Panel A | Panel B |
| --- | --- | --- |
| *Earningst-1* | 0.3473 |  |
|  | (10.27)\*\*\* |  |
| *IFRSdummy* | 0.0151 | 0.0078 |
|  | (1.52) | (0.76) |
| *Ifrs\_Earning t-1* | -0.3601 |  |
|  | (6.58)\*\*\* |  |
| *Cf t-1* |  | 0.6069 |
|  |  | (14.35)\*\*\* |
| *Ifrs\_CF t-1* |  | -0.2780 |
|  |  | (-4.14)\*\*\* |
| *Acc t-1* |  | 0.3833 |
|  |  | (10.26)\*\*\* |
| *Ifrs\_Acc t-1* |  | -0.4054 |
|  |  | (-6.99)\*\*\* |
| Constant | .06373 | 0.0687 |
|  | (8.91)\*\*\* | (9.12)\*\*\* |
| R-Square | 0.351 | 0.353 |

*\*\*\*, \*\* and \* indicate that values are significant at 1%, 5% and 10% respectively. T-statistics are in parentheses.*

***Note:*** *Earningsit and Earningsit-1 = current and lag-year earnings respectively scaled by total amount of assets and measured by earnings before interest and tax (EBIT). CFit-1 = cash flows from operations scaled by total amount of assets. ACCit-1 = total amount of accruals scaled by total amount of assets estimated as the difference between EBIT and CF. IFRSdummy = dichotomous variable measured as 1 for observations within IFRS period and 0 for observations in SAS period. The remaining variables are the interaction terms between IFRS and earnings and its components.*

To further confirm our findings, we decomposed earnings into cash flow and accruals components as reported in Panel B. the coefficients of cash flow (*Cf t-1*) and accruals (*Acc t-1*) are both positive and statistically significant at 1% suggesting that both components jointly contribute to earnings persistence. Similarly, after interacting each component with IFRS dummy, the coefficients of these interaction terms are negative and statistically significant at 1%.

The implication of this finding is that both cash flow and accruals are more persistence in the SAS period compared to the IFRS period. Our findings are consistent with the idea that IFRS adoption in Nigeria does not improve the quality of reported earnings but rather deteriorate it. Our findings are parallel to the findings of Doukakis (2010) who found that IFRS does not lead to higher earnings persistence and its components. However, our findings contradict the findings of Liu and Sun, (2015) who found higher earnings persistence subsequent to IFRS implementation.

**5. Conclusion**

This study instigates whether the adoption of IFRS has resulted in higher earnings persistence across firms listed on the Nigerian Stock Exchange (NSE) overs a period of ten years from 2007 to 2016. We ran two separate econometrics models. While the first one assesses overall earnings persistence, the other one assesses components of earnings in both SAS period and IFRS period. The findings from all the assessments reveal that earnings of sample firms during SAS period are more persistence compared to their earnings during IFRS period even after decomposing earnings into operating cash flows and accruals components. On the basis of this, we conclude that the adoption of IFRS in Nigeria has not resulted in higher earnings persistence.

Our findings do not imply that IFRS is a lower standard compared to domestic GAAP. But we can rather imply that lower earnings persistence is associated with greater variability of earnings which may be related to a reduction of income smoothing practices and consequently yielding higher earnings quality. Additionally, in order to realize the benefit of improved accounting quality associated with IFRS implementation, regulatory bodies that will ensure and guarantee adequate implementation of IFRS are necessary. However, in Nigeria, the primary regulatory body is not living to its expectation. This is correct when one looks at the functions of the Financial Reporting Council of Nigeria (FRCN). After its establishment in 2011, the council among others, is saddled with the responsibility of producing a new set of corporate governance codes that will, in addition, ensure proper IFRS implementation. However, up to recent, such mandate has not been achieved.

**6. Recommendation**

On the bases of the findings, we offer some recommendation to both regulators and future researcher. In relation to regulators, we recommend that FRCN to take more proactive actions that will lead to the realization of all the benefits associated with IFRS adoption such issuing new codes of good corporate governance. This will go along way in enhancing quality corporate reporting capable of attracting foreign investors. When investors are attracted, there would expansion of business which will lead to economic development thereby facilitating the realisation of the vision of becoming among the twenty most significant economy of the world by the year 2020.

This study suffers from survivorship bias as some firms were excluded from sample selection due to the nature of the study. In relation to this, future researchers can replicate this study by considering firms listed on the financial service sector. Similarly, other dimensions of earnings quality could be considered in assessing the consequences of forsaking the local standards for foreign standards and compared with the result with earnings persistence metric.

# References

Ahmed, K.H., Chalmers, K. & Khlif, H. (2013). A meta-analysis of IFRS adoption effects. The *International Journal of Accounting, 48*(2), 173 – 217.

Burnett, B.M., Gordon, E.A., Jorgensen, B.N. & Linthicum, C.L., (2015). Earnings quality : Evidence from Canadian firms’ choice between IFRS and U.S. GAAP. *Account. Perspect. 14,* 212–249.

Chambers, D. & Payne, J. (2011). Audit quality and accrual persistence: Evidence from the pre‐ and post‐Sarbanes‐Oxley periods, *Managerial Auditing Journal, 26(*5), 437-456.

Collett, P.H., Godfrey, J.M. & Hrasky, S.L., (2001). International harmonization: Cautions from the Australian experience. *Account. Horizons 15*, 171–182.

Daske, H., & Gebhardt, G. (2006). International financial reporting standards and experts’ perceptions of disclosure quality. *Abacus 42,* 461–498.

De George, E.T., Li, X., & Shivakumar, L. (2016). A review of the IFRS adoption literature. *Review of Accounting Studies.*

Dechow, P. M.; Ge, W.; & Schrand, C. (2010). Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of Accounting and Economics, 50,* 344-401

Dichev, I.D., Tang, V.W., (2009). Earnings volatility and earnings predictability. *Journal of Accounting and Economics. 47* (1–2), 160–181.

Dion, M. (2016). Agency theory and financial crime: the paradox of the opportunistic executive. *Journal of Financial Crime, 23*(3), 574–587.

Doukakis, L.C., (2010). The persistence of earnings and earnings components after the adoption of IFRS. *Managerial Finance, 36*, 969–980.

Ewert, R. & Wagenhofer, A. (2015). Economic relations among earnings quality measures. *ABACUS,* 51(3), 311–355.

Gu, Z., & Jain, P. C. (2005). Sustained earnings and revenue growth, earnings quality, and earnings response coefficients. *Review of Accounting Studies, 10*, 33–57.

Halabi, H., & Zakaria, I., (2015). Mandatory IFRS adoption and earnings quality : The impact of country-specific factors. Essex Bus. Sch. Univ. Essex Wivenhoe Park. Colchester CO4 3SQ 1–48.

Hoang, T. C., Abeysekera, I. & Ma, S. (2015). The effect of board diversity on earnings quality : An empirical study of listed firms in Vietnam. *Australian Accounting Review.*

IASB. (2018). Conceptual framework for financial reporting 2010. IFRS.

Ismail, A., KKamarudin, A.K., Zijl, T. van, & Dunstan, K., (2013). Earnings quality and the adoption of IFRS-based accounting standards Evidence from an emerging market. *Asian Review of Accounting*. 21, 53–73.

Jensen, M. C. & Meckling, W. H. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305-60.

Jermakowicz, E. V. & Gornik-Tomaszewski, S. (2006). Implementation IFRS from the perspective of EU publicly traded companies. *Journal of International Accounting, Auditing and Taxation, 15*(2), 170–196.

Kabir, M. H., Laswad, F. & Islam, A. (2010). Impact of IFRS in New Zealand on accounts and earnings quality. *Australian Accounting Review, 20*(55/4), 343–357.

Kamarudin, A. K., Ismail, W. A. & Samsuddin, Ervina, M. (2012).The influence of CEO duality on the relationship between audit committee independence and earnings quality. *Social and Behavioral Sciences, 65*(ICIBSoS), 919–924.

Kormendi, R., & Lipe, R. (1987). Earnings innovations, earnings persistence, and stock returns. *Journal of Business, 60*, 323−345.

Krismiaji, Aryani, Y.A., & Suhardjanto, D., (2016). International financial reporting standards, board governance, and accounting quality. *Asian Review of Accounting. 24*, 474–497.

Laux, C. & Leuz C. (2009). The crisis of fair value accounting: Making sense of the recent debate. *Accounting, Organizations and Society 34*, 826–34.

Liu, G., & Sun, J. (2015). did the mandatory adoption of IFRS affect the earnings quality of Canadian firms? Accounting Perspective, 14, 250–275.

Parte-esteban, L., & Garcia, F. C. (2014).The influence of firm characteristics on earnings quality. *International Journal of Hospitality Management, 42,* 50–60.

Wang, J. & Yang, W. (2013).The study on listed company earnings quality analysis school of economics and management. Henan Polytechnic University, P.R. China, 450001 wjh@hpu.edu.cn

Yao, L. (2015). Earnings persistence, fundamentals, and anticipation of breaking earnings strings. *Canadian Journal of Administrative Sciences, 34*(3).



**Financial Inclusion and Profitability of Quoted of Deposit Money Banks in Nigeria**

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**Abstract**

*This study examines impact of financial inclusion on financial performance of quoted Deposit Money Banks (DMBs) in Nigeria. The study measures financial inclusion with Micro, Small and Medium Enterprises Financing, Rural Financing, Number of branches of DMBs, Pricing and Usage of banking services, while financial performance is measured with return on assets. This study adopts expo facto research design. The population of the study comprises of the 15 quoted deposit money banks on the Nigerian Stock Exchange for the period of 2002-2015.* *14 out of 15 quoted DMBs are taken as sample, using filtering sampling technique to censor one of the quoted DMBs due to non-availability of sufficient data. The study makes use of secondary data collected from Central Bank of Nigeria statistical bulletin and financial reports of sampled banks. Panel multiple regression analysis is utilized and Hausman specification test favoured the use of fixed effect model. Test for adequacy were performed on the residuals and the results indicated that the residuals are homoskedastic and had no serial correlation, suggesting that the model is good. The study finds that rural financing and number of branches of deposit money banks have statistically significant effects on profitability of DMBs in Nigeria. The study concludes that financial inclusion improves profitability of DMBs in Nigeria. Based on the findings, this study recommends that DMBs should increase the amount of loan and advances given to rural areas and Micro, Small and Medium Enterprises as this will strengthen profitability of DMBs in Nigeria.*

**Keywords:** Financial Inclusion, Financial Performance

**JEL** **Codes**: G20

**1. Introduction**

Financial inclusion is simply an extension of banking and financial services (such as savings, deposits, payments, withdrawals, loans and advances) to an individual, group or community that were hitherto excluded. It is the universal access and usage of affordable financial services to the low income, the underserved, small businesses adequately covered under the umbrella of Micro, Small and Medium Enterprises (MSMEs). Given the gloomy picture of the low level of financial inclusion in the world and the importance of financial inclusion to poverty alleviation and inclusive growth, there are growing concerns on the need to improve the level of financial inclusion worldwide (Onaolapo, 2015). Following the Maya Declaration of 2011 in Mexico, financial inclusion received increased attention and has become more pronounced ever since. Mbutor and Uba (2013) assert that a higher degree of financial inclusion tends to boost higher economic growth and positive development both at micro and macro levels of the economy.

World Bank (2015) asserts that around 2 billion people in the World do not use formal financial services and more than 50% of adult populations in the Developing Countries are unbanked. At multi-national levels, the new global development blueprints of the United Nations, the Sustainable Development Goals (SDGs), the successor to the Millennium Development Goals (MDGs) considered financial inclusion as a catalyst and key enabler for achieving 7 out of 17 Sustainable Development Goals (SDGs) in the areas of poverty reduction and boosting shared prosperity (Islamic Development Bank, 2016).

In Africa, the recent global financial inclusion Index shows that less than a quarter of bankable adult population has an account with formal financial institutions (Demirgue-Kunt & Klapper, 2012). This further confirms the high rate of financial exclusion as majority of African Adults in many African Countries appear to be financially excluded and perhaps use informal method to save or borrow funds outside the banking systems.

In the case of Nigeria, according to Central Bank of Nigeria (2012), 39.2 million adult populations, representing 46.3% of Nigerian Adults are financially excluded with regards to access and usage of financial services. This concern has led Nigeria, among others, (more than 50 countries), after the Maya Declaration in 2011, to set formal targets of universal financial access by 2020. Consequent upon this, the CBN launched the Nigerian Financial Inclusion Strategy (NFIS) in 2012, setting a target to reduce Financial Exclusion to 20% by 2020 from the baseline of 46.3%.

Profitability, as asserted by Bessler and Bittelmeyer (2006), is an indicator of how a firm has transformed its assets to generate revenue in its day-to-day business operations. Profitability also mirrors how external parties evaluate a firm’s ability to operate on the long run. Therefore, managers of firms are under constant pressure from a wide spectrum of stakeholders (managers themselves inclusive) for better performance resulting in conflict of interests and subsequent agency costs which will be borne by shareholders (Watts & Zimmerman, 1979).

The Banking industry plays a very key role in the economy of any nation, through financial intermediation, robust but seamless credit and payment systems. Nwala and Abubakar (2014) assert that viability of any nation’s economy therefore depends more often than not on how healthy the banking sector fairs. Subsequently, governments all over the world attempt to establish an efficient and effective banking system to promote economic growth and enhance the financial performance of the banking sector through supervision, regulations and reforms (Aruwa & Naburgi, 2014). Deposit Money Banks provide the platform and delivery vehicle for financial inclusion activities in the payment-credit systems and more financial inclusion could bring more people into the banking nets, which could radiate positively into the financial performance of banks through increased services patronage and broader clientele services. This study is thus necessitated by concerns on current state of financial inclusion and its implications on financial performance of Deposit Money Banks (DMBs) in Nigeria. This is premised on the fact that, it is the banks that provide, in the main, the platform, delivery vehicle and the operating environment for the financial inclusion activities.

There is a plethora of studies in the areas of financial inclusion and profitability. But studies that link the interconnectivity between the two are few. Early studies on financial inclusion focused on macroeconomic variables, which do not clearly show the specific industry dynamics of financial inclusion and the important financial intermediation role of deposit money banks in financial inclusion activities. Thus, Kempson (2006); Aduda and Kalunda (2012); Mbutor and Uba (2013); Aina and Oluyombo (2014); Onaolapo (2015); Nkwede (2015) and Babajide, Adegboye and Omanshalen (2015) found nexus between financial inclusion and macroeconomic variables such as Gross Domestic Products (GDP), income inequality, poverty alleviation, financial systems, financial stability and monetary policies, et cetera.

Although there are pockets of studies in the areas of financial inclusion and banks profitability, studies in this area are few and this vacuum has not been exhaustively explored. For instance, Ikram and Lohdi (2015) investigated the impact of financial inclusion on banks’ profitability in Karachi, Pakistan. Their study oversimplified bank revenue generation as a proxy for profitability and the use of questionnaire instead of a more robust data collection technique has been considered inadequate by this study.

In addition, the work of Chauvet and Jacolin (2015) examined the impact of financial inclusion on firms’ performance, measuring financial inclusion with SME financing. This study however suggested further studies in other financial inclusion variables not captured by their research, particularly ones that consider financial intermediation role of financial institutions for a resilient banking industry. This study filled these gaps and seeks to examine the impact of financial inclusion on financial performance of DMBs in Nigeria.

The main objective of this study is to examine the impact of financial inclusion on profitability of quoted DMBs in Nigeria while the specific objectives of the study are to examine the impact of micro, small and medium enterprises financing, usage of banking services, pricing of banking services, number of DMBs branches and rural financing on profitability of quoted DMBs in Nigeria. The study covered the periods of 2002 to 2015. The independent and dependent variables were extracted from the annual financial reports of quoted DMBs in Nigeria. The profitability indicator that was used is ROA which measure the proportion of profit after tax to Total Asset.

The rest of this paper is organized as follows. Section 2 reviews the literature and present theoretical framework. Section 3 discusses the research methodology. Section 4 discusses the results. Finally, conclusions are drowned in Section 5.

**2.Literature Review and Theoretical Framework**

*Micro, Small and Medium Enterprises Financing and Profitability*

Boadi, Dana, Mertena and Mensa (2017) examined the impact of SME’s financing on bank profitability in Ghana, using regression model anchored on fixed effect model. The study found that SME financing has a significant positive impact on banks financial performance in Ghana. The study offered a fresh perspective on the SME financing and bank profitability. Equally, Chauvet and Jacolin (2015) studied the impact of financial inclusion on financial performance of firms in countries with low financial development, using firm-level data panel for a sample of 26 countries. The study found that there is a significant positive impact of financial inclusion on firms’ performance. The study highlighted access to funds by SMEs as a very important financial inclusion variable. In the same manner, Shahchera and Taheri (2011) investigated the impact of loans to SMEs and banks profitability in Iran, using panel data regression model based on GMM. The study found that SMEs financing has a negative significant impact on profitability of banks in Iran as banks considered SME financing a highly risky business venture.

*Usage of Banking Services and Profitability*

Harelimana (2016) examined the impact of financial inclusion on financial performance of microfinance institutions in ClecamEjoheza, Rwanda, using a combined technique of primary and secondary data anchored on a regression model. The study found a positive correlation between customers’ deposits and financial performance of banks. The study highlighted financial inclusion variable on rural areas deposits mobilized by banks. Likewise, Chauvet and Jacolin (2016) examined the impact of financial inclusion, bank concentration on firm performance, using a firm level data of 55,596 firms in 79 countries. The study found that usage and distribution of banking and financial services (financial inclusion) across firms has a positive impact on financial performance of firms. The study of Tuyishime, Memba and Mbera (2015) examined the effects of deposit mobilization on financial performance in commercial banks in Rwanda adopting a combination of primary and secondary data analysis tools. The study found nexus between a rise in deposits and financial performance of banks. Ikram and Lohdi (2015) considered impact of financial inclusion on banks’ profitability in Karachi, Pakistan, using correlation statistics and linear regression model for the data analysis of the study. It was found that usage of banking services has no significant relationship between on financial performance of banks as a result of the fact that banks do not pursue financial inclusion as a corporate strategy to the depressed population who were excluded from usage of financial services/products. The study carried out by Okun (2012) looked at the effect of level of deposits on financial performance of commercial banks in Kenya, based on regression model to find the nexus between deposits level and profitability of banks. The study found that there is a positive significant relationship between deposits level and financial performance of banks. The study was precise in using the appropriate research method in data analysis considered to be very reliable. But the study was conducted in 2012 and an update is needed. Kithaka (2011) investigated the effect of mobile banking on financial performance of banks in Kenya, based on multiple regression models. The study found that usage of banking services via mobile banking has a positive effect on Financial Performance of Kenyan commercial banks. Kagan, Acharya, Rao and Kodepaka (2005) in their study examined the impact of usage of banking services (internet banking) on financial performance of commercial banks. The study found that usage of online banking services impacted positively on the financial performance of banks. This research demonstrated a positive correlation between usage of banking services and financial performance of banks.

*Pricing of Banking Services and Profitability*

Enyioko (2012) examined the impact of interest rate policy and financial performance of Deposit Money Banks in Nigeria, using a combination of regression and correlation methods to find and analyze the nexus between interest rate and bank performance. The study found that bank interest rate has no significant impact on profitability and efficiency of banks. The study used an elaborate methodology to analyze data during the consolidation era. But this study was limited to 2009. An update in research off this nature will expose the current trends.

Wambari and Nwangi (2017) investigated the effect of interest rates on the financial performance in Kenyan deposit taking commercial banks, using a multiple linear regression technique. The study found that lending interest rate has a positive significant effect on financial performance of banks in Kenya. The study of Ikram and Lohdi (2015) investigated the impact of financial inclusion on Banks’ profitability in Karachi, Pakistan, using Correlation statistics and linear regression model for the data analysis of the study. The study found that pricing of banking services has no significant impact on financial performance of banks. Equally of importance is the study of Ahmed, Rehan, Chhapra and Supro (2014) which evaluated the impact of interest rate on financial performance of banks in Pakistan, using a regression model. The study found that interest rate has a significant impact on profitability of banks in Pakistan. But the period was limited to the year 2014. The effect of lending interest rate on financial performance of deposit taking microfinance institutions in Kenya was carried out by Mwangi (2013) using multivariate regression model. The study found that there is a strong relationship between lending interest rate and financial performance of deposit taking microfinance institutions. The study offered an incisive multivariate analysis. However, this study was limited by scope which was restricted to microfinance institutions. In the same manner, the study of Enyioko (2012) examined the impact of interest rate policy and financial performance of deposit money banks in Nigeria, using a combination of regression and correlation methods to find and analyze the nexus between interest rate and bank performance. The study of Musiu (2005) investigated the relationship between lending interest rate and financial performance of commercial banks in Kenya, using a linear regression model. The study found that lending rate affects the financial performance of commercial banks in Kenya. The study considered pricing of banking services as related to financial performance of commercial banks.

*Numbers of Branches of Deposit Money Banks and Profitability*

Prasetyo and Sunaryo (2015) examined the branch expansion and the performance of banks in Indonesia, using path analysis to link the causal relationship between number of branches of banks and financial performance. The study found that there is no significant impact of number of branches on the financial performance of banks. The study carried out by Nader (2011) investigated the effect of banking expansion on the profit efficiency of Saudi Arabia Banks, using a secondary data spanning a period of 1988 to 2007. The study found that network of branches has positive effect on profit efficiency. The study of Hirtle (2007) investigated the impact of number of U.S. bank branches on overall financial performance of institutions, using a pooled regression model to analyze data. The study found that no significant relationship exists between number of branches and banks financial performance.

Pastor, Lovell and Tulken (2006) evaluated the relationship between bank branches spread and overall financial performance of big banks in Europe, adopting a complimentary non parametric technique. The study found nexus between bank branch offices and overall financial performance of banks and that, banks can increase their financial performance of its branch network.

*Rural Financing and Profitability*

Adusei (2015) studied the impact of rural financing on banks profitability in Ghana, using a multiple regression model. The study found a negative statistically significant impact of rural financing on bank profitability. The study George, James and Margret (2014) investigated the effect of financial performance of rural banks in Ghana, using a regression model to establish nexus between rural financing and banks profitability. The study found a positive significant effect of rural financing on financial performance of banks. Likewise, Emire, Mills and Amowine (2013) examined the nexus between rural financing and bank profitability in Ghana, using a panel data regression model. The study found that rural financing has a positive significant effect on financial performance on rural banks.

Rachana (2011) studied the relationship between financial inclusion and performance of rural co-operative banks in Gujarat in India, using qualitative and quantitative data obtained from Ambasan, Jotana and Khadalpur villages and rural banks in Gujarat. The study found that there is no significant relationship between rural financing and profitability of banks in Gujarat, India as a result of high rate of non-performing loans. The study of Awo (2010) studied the financial performance of rural banks in Ghana, using a multiple regression model. The study found that a significant relationship exists between rural financing and financial performance of Naara Rural Bank in Ghana. The study was relevant and good reference point in rural financing and financial performance of bank. However, it was a case study of Naara Rural Bank of Ghana, which could hardly be generalized for the entire industry.

*Theoretical Framework*

This study relies on Financial Inclusion Lifecycle and Innovative Financial Inclusion Models. Financial Inclusion Lifecycle Model was propounded by Frost and Sullivan (2009). The model depicts financial inclusion as a continuous access as well as usage of banking and financial services on a regular basis and not a one-off transaction. This model adopts a three-model approach for a financially inclusive society: financial literacy, opening of accounts and usage of the account as a continuous process and a gateway to enjoying other banking and financial services. Onaolapo (2015) used this model to explain the access, usage of banking and financial services as a means of robust financial inclusion. On the other hand, Innovative Financial Inclusion Model was propounded by G20 leaders (An alliance of twenty richest countries in the world) in 2009. Arising from the Pittsburgh Summit in September, 2009, it was resolved that encompassing usage and access to financial services deliveries to the downtrodden, low income earners and small businesses through an array of products that encourage easy patronage and inclusion should be advocated. This model emphasizes that financial inclusion could be deepened through a wide range of different banking and financial products and services to attract more customers. G20 leaders (2010) explained that Innovative Financial Inclusion is delivery of financial services beyond conventional service points of banks but also through the use of ICT, non-banking retail agents, POS, mobile banking and other device networks to reach a wide spectrum of clientele. The two models explain the variables of this study on financial inclusion as it relates to easy access and usage of banking and financial services to engender continuous usage of financial services.

**3. Methodology**

This study adopts ex-post facto research design, relying on secondary data obtained from CBN statistical bulletins and annual reports of the study’s population.. The population of this study is all quoted deposit money banks in Nigeria within the research period between 2002 and 2015. Since the number of the population is not many, 14 out of 15 quoted DMBs are taken as sample, using filtering sampling technique to censor one of the quoted DMBs due to non-availability of sufficient data. Analyzing data, the study utilizes panel regression model combining time series and cross-sectional observations with the aid of e-view 9 statistical package. In view of the discussion above, the various hypotheses and variables are combined into a functional relation to explain the nexus that subsists between financial inclusion and financial performance of DMBs in Nigeria. The model is expressed as:

ROAit = βₒ + β***1***MSFt+ β***2***UBSit+ β***3***PBSit +β***4***NBRit+ β***5***RFIit+ eit ………………..1

Where; ROA = Return on Assets

βₒ = Intercept or regression constant

β1 – β5 = Coefficients of the independent Variables

MSF = MSMEs Financing (DMBs loans to SMEs)

UBS = Usage of Banking Services (Deposits of rural branches of DMBs)

PBS = Pricing of Banking Services (Weighted average lending rate)

NBR = Number of Bank Branches of DMBs

RFI = Rural Financing (Loans of rural branches of DMBs)

**e =** Error Term

**4. Results and Discussions**

In this section, results are presented and discussed. An analysis of the descriptive statistics is presented followed by the regression result for the hypotheses tests:

Table 3.1 Descriptive Statistics

|  | ROA | MSF | UBS | PBS | NBR | RFI |
| --- | --- | --- | --- | --- | --- | --- |
| Mean | 0.4323 | 10.1312 | 7.3978 | 3.1115 | 8.4020 | 10.4708 |
| Maximum | 2.2554 | 11.4095 | 11.3237 | 3.4075 | 8.6671 | 13.6750 |
| Minimum | -3.2188 | 9.3332 | 2.9817 | 2.9101 | 8.0096 | 9.0985 |
| Std. Dev. | 0.7380 | 0.7106 | 3.0685 | 0.1423 | 0.2505 | 1.3498 |
| Skewness | -1.2956 | 0.6148 | -0.4442 | 0.2742 | -0.4252 | 0.6165 |
| Kurtosis | 3.4314 | 2.8128 | 2.6505 | 2.3418 | 2.3827 | 4.2994 |
| Jarque-Bera | 1.5142 | 3.2856 | 2.1318 | 5.9950 | 4.2766 | 0.9155 |
| Probability | 0.4180 | 0.1704 | 0.2335 | 0.0699 | 0.0963 | 0.6362 |
| Observations | 196 | 196 | 196 | 196 | 196 | 196 |

*Source: E view 9 output*

The table above indicates that the mean of ROA is 0.432336 with standard deviation of 0.738084, the minimum and maximum values of -3.218876 and 2.255493 respectively. The mean value of MSME financing (MSF) is 10.13125 with standard deviation of 0.710697, the minimum and maximum values of 9.333250 and 11.40952 respectively. Usage of banking services (UBS) mean value is 7.397852 with standard deviation of 3.068522, the minimum and maximum values of 2.981797 and 11.32376 respectively. Pricing of banking services (PBS) mean value is at 3.111593 with standard deviation of 3.068522, the minimum and maximum values of 2.981797 and 3.407511 respectively. The mean value of number of bank branches (NBR) is 8.402088 with standard deviation of 0.250565, the minimum and maximum values of 8.009695 and 8.667164 respectively. The mean value of loan and advances to the rural areas (RFI) is 40.47083 with standard deviation of 1.349808, the minimum and maximum values of 9.098537 and 13.67504 respectively.

These results suggest that the data are not widely dispersed from the mean because the standard deviations of all the variables are less than the mean values. Also, the skewness value of all the variables is close to zero, it means that the distribution of the variables is symmetric in nature. The Kurtosis values of all the variables is also closer to 3, it indicates that the shape is a normal distribution. The probability value of Jarque-Bera test of all the variables are more than 5%. It indicates that they are normally distributed after data transformation through log of the data.

Table 3.2 Correlation Matrix

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | ROA | MFI | UBS | PBS | NBR | RFI |
| ROA | 1 |  |  |  |  |  |
| MFI | 0.0532 | 1 |  |  |  |  |
| UBS | -0.0204 | 0.5430 | 1 |  |  |  |
| PBS | -0.0508 | -0.0330 | -0.1239 | 1 |  |  |
| NBR | 0.0231 | -0.7839 | -0.7100 | -0.0581 | 1 |  |
| RFI | 0.0690 | -0.3904 | -0.4998 | 0.1178 | 0.4573 | 1 |

*Source: E view 9 Output*

Table 3.2 presents the correlation matrix of the dependent and independents variables. It is noted that the variables correlate quite well (between - 0.71 and 0.54). There is no correlation coefficient greater than 0.8, hence absence of problem of multicollinearity of data.

*Correlation Matrix and Multicollinearity Analysis*

The correlation matrix is used to determine the relationship which subsists between the explanatory and dependent variables of the study. The table below shows the correlation matrix for the sample observations.

*Post Estimation Diagnostics Tests*

The tolerance values and the variance inflation factor are two good measures of assessing multicolinearitybetween the independent variables in a study.

Table 3.3 Variance Inflation Factor

|  |  |  |
| --- | --- | --- |
| Variable | VIF | 1/VIF |
| C | NA | 0.010113 |
| MFI | 1.072666 | 0.000130 |
| UBS | 1.019271 | 0.001185 |
| PBS | 1.124476 | 0.001499 |
| NBR | 1.020068 | 0.000386 |
| NFI | 1.037964 | 0.000202 |

*Source: E-view Output, 2015*

The result shows that variance inflation factor were consistentlysmaller than ten (10) indicating complete absence of multicolinearity (Neter et ‘al; 1996). This shows the suitability of the study model been fit with the six independent variables. Also, thetolerance values were consistently smaller than 1.00, therefore extend the fact that there is complete absence ofmulticolinearity between the independent variables (Tobachmel & Fidell, 1996).

*Panel Regression Analysis*

Based on the result of the Hausman test to determine which of either random or fixed effect is appropriate, this study accepts alternative hypothesis which states that Fixed effect is appropriate because the probability value of 0.02871 is less than 0.05.

Table 3.4 Fixed Effect Regression

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | Coefficient | Standard Error | t-statistics | Prob |
| C | 4.528490 | 4.894670 | 0.925188 | 0.3561 |
| MSF | 0.198789 | 0.119736 | 1.660224 | 0.0986 |
| UBS | 0.001770 | 0.025773 | 0.068662 | 0.9453 |
| PBS | -0.883672 | 0.384050 | -2.300929 | 0.0461 |
| NBR | 0.890698 | 0.414922 | 2.146637 | 0.0477 |
| RFI | 0.150975 | 0.045597 | 3.311073 | 0.0251 |
| R2 | 0.52 |  |  |  |
| Adj. R2 | 0.42 |  |  |  |
| F-Statistics | 8.28 |  |  |  |
| Prob(F-Statistics) | 0.044 |  |  |  |
| Hausman Prob. Value | 0.02871 |  |  |  |
| Heteroskedasticity Observed R-square | 0.3199 |  |  |  |
| Br-Godfrey LM Ob. R | 0.2126 |  |  |  |

*Source: E-view Output, 2015*

*Discussion of Findings*

The results in table 5 indicate that financial inclusion accounts for about 52% variation in profitability of DMBs in Nigeria. The model is considered fit and appropriate because the p-value of F-Statistics is 0.044660 which is statistically significant at 5% levels of significance.

The empirical evidence derived from the fixed effect regression model indicates that MSME financing (MSF) has no statistical significance (p=0.0986) impact on profitability of quoted DMBs in Nigeria. This finding shows that access to loans and advances by MSMEs still remain barriers and may be due to barriers usually imposed by DMBs in loans applications. This might not be unconnected with a plethora of accounts documentations requirements, high pricing, setting minimum account balances, long list of checklists, etc, are barriers to MSMEs in accessing facilities. Banks’ performance could be better with the removal of these barriers. The insignificant association between MSME financing and profitability of quoted Deposit Money Banks in Nigeria is consistent with prior findings of Ikram and Lohdi. But inconsistent with the findings in Adusei (2015), Emire, Mills and Amowine (2013.

On the relationship between Usage of banking services and profitability of quoted DMBs in Nigeria, this study also found that usage of banking services (UBS) has no statistically significant (p=0.9453) impact on profitability of quoted DMBs in Nigeria. This finding may not be unconnected with service failure, spurious charges by DMBs, frequent systems downtime and general service dissatisfaction which discourage opening of new accounts and maintaining usage of existing accounts from going dormant. This is because when customers experience service failure, they may discontinue the service patronage. This result supports the findings of Ikram and Lohdi (2015) but contradicts kagan, Acharya, Rao and Kodepaka (2005); Kithaka (2011); Okun (2012); Harelimana (2016); Chauvet and Jacolin. The study revealed that pricing of banking services (PRCBS) has a negative statistically significant (p=0.0461) impact on profitability of quoted DMBs in Nigeria. This result is consistent with finding on access to banking services, since pricing is consequent upon access. This finding shows that banking services may be highly priced to encourage more financial inclusion; this barrier needs to be mitigated appropriately so that patronage can be improved upon. Thus, the issue of interest rate (pricing) increase should not be contemplated by DMBs in the interim. This position is perhaps in congruence with recent tide of the CBN recently for consecutive downward reviews of Monetary Policy Rate (MPR) in a row in pursuit of a single digit interest rate regime. This result supports the findings of Enyioko (2012) but contradicts Musiu (2005); Nwangi (2013).

The study also revealed that number of branches of DMBs has a positive statistically significant (p=0.0477) impact on profitability of quoted DMBs in Nigeria. This indicates that number of branches of DMBs in terms of spread and locations does not really matter to encourage better financial inclusion. This is because banking services can be accessed on many platforms electronically in real time and online without physical visitation to the branches, or perhaps branches are wrongly located and thus unable to support the overall profitability of banks. This result supports the findings of Hirtle (2007); Prasetyo and Sunaryo (2015); but contradicts Pastor, Lovell and Tulken (2006); Nader (2011).

The study finally found that rural financing by DMBs has a positive significant impact on profitability of quoted DMBs in Nigeria (p=0.0251). This finding reveals that financial inclusion is being enhanced in rural areas occasioned by loans and advances granted by DMBs. This finding supports the extant studies such as those of Nkwede (2015) Beck, Demirgue-kunt and Peria (2005) and contradicts those of Mbutor and Uba (2015).

**5. Conclusion and Recommendations**

The study investigates the relationship that subsists between financial inclusion and profitability of deposit money banks in Nigeria. Financial inclusion is measured with MSMEs financing (DMBs Loans to Micro Small Medium Enterprises (MSMEs), Rural Financing (Loans of rural branches of DMBs), Pricing of Banking services (weighted average lending rate) as charged by DMBs, Number of branches of DMBs in Nigeria (Accessibility and Availability of banking and financial services and products through service outlets and points) and Usage of Banking services (Deposits of rural branches of DMBs arising from usage of different banking products and services by customers) as independent variables, while financial performance of Deposit Money Banks, as a dependent variable, is measured with Returns on Assets of DMBs calculated as Profit Before Interest and Tax (PBIT) over Total Assets of DMBs. This study finds that rural financing and number of branches of deposit money banks have positive statistically significant effect on profitability of DMBs in Nigeria, while pricing of banking services has a negative significant effect on profitability. Based on the findings, the study concludes that rural financing and number of branches of DMBs improve profitability of DMBs.

The study recommends that DMBs should increase the amount of loan and advances given to rural areas and MSMEs as this will strengthen profitability of DMBs in Nigeria. CBN and NDIC should also encourage DMBs through their regulatory and supervisory functions to give priority to SMEs financing in Nigeria. It is also recommended that usage of banking services should be properly encouraged through excellent and satisfactory service delivery of DMBs to ensure continuous usage of banking services in line with Financial Inclusion Lifecycle and Innovative Financial Inclusion Models.

**References**

Aduda, J., &Kalunda, E. (2012). Financial inclusion and financial sector stability with reference to Kenya: A Review of Literature. *Journal of Applied Finance andBanking*. Vol. 2, No 6, 2012, 95-120 ISSN 1792 – 6580, 2012

Adusei, M. (2015). Branch profitability: insights from the rural banking industry in Ghana. *General and Applied Economics Research Articl*e. Cogent Economics & Finance (2015) 3: 1078270 Sept, 2015

Ahmed, A., Rehan, R., Chhapra, I.U. &Supro, S. (2014). Interest Rate and financial performance of banks in Pakistan.*International Journal of Applied Economics, finance & Accounts,* vol 2, No 1. Pp 1-7, 2008

Aina, S, & Oluyombo, O. (2014). The Economy of financial inclusion in Nigeria: Theory, Practice and Policy, Department of Financial Studies, Redeemers University, Ogun State, Nigeria.

Aruwa, S.A,S, &Naburgi, M.M. (2014). Impact of capital adequacy on the financial performance of quoted deposit money banks in Nigeria. *Nasarawa Journal of Administration*, Vol. 1, NO 1. 2014

Athanasoglou, P. P., Brissimis, S.N, & Delis, M. D. (2005). Bank-specific, Industry Specific and Macroeconomic Determinants of Bank Profitability. *Bank of Greece.Working Paper No. 25*

Awo, J. P., &Akotey, J.O. (2010) financial performance of rural banks in Ghana: A case study of Naara Rural Bank. Faculty of economics and business administration, catholic university college of Ghana, 2010

Babajide, A. A., Adegboye, F.B., & Omankhanlen, A.E. (2015).Financial inclusion and economic growth in Nigeria, *International Journal of Economics and Financial Issue.* Vol. 5, Issue No. 3

Bessler, N., &Bittelmeyer, C. (2006). Innovation and the Performance of technology firms: Evidence from, Initial Public Offerings in Germany. Center for Finance and Banking, Justus – Liebug – University Giessen, 2006

Boadi, I., Dana, L.P. Martens, G. & Mensah L. (2017). SME’s financing and bank profitability: A good date for banks in Ghana. *Journal of African Business, vol 12, issue 2,* 2017

Central Bank of Nigeria (2012). National Financial Inclusion Strategy, Financial Inclusion Secretariat, Summary Report, Central Bank of Nigeria, Abuja

Central Bank of Nigeria (2016). Statistical Bulletin, Annual Report, Vol. 13, Central Bank of Nigeria, 2016

Chauvet, L. &Jacolin, L. (2015).financial inclusion and firms performance. ird, leds, dial UMR 225, Banque de France, PSL, Universit~Ac Paris-Dauphine, FERDI. Banque de France. 2015

Chauvet, L. &Jacolin, L. (2016).financial inclusion, bank concentration and firms performance. *Banque de France, PSL, Universit~Ac Paris-Dauphine*, FERDI.Banque de France. Working paper No 615 SSRN

Demirgue-Kunt, A., Cordora E. L., Martinez Peria, M, Woodruff C, (2011). Remittance and Banking Services Sector Breadth and Depth: Evidence from Mexico. J. Dev. Econs, 95, 229-241

Emire, E. F., Mills, A., &Amowire, N. (2013). The rural bank profitability nexus: evidence from Ghana. International Journal of Applications and Innovation in engineering and Management. ISSN 2319 – 4847 vol. 2, issue 4, April, 2013

Enyioko, N. (2012). Impact of interest rate policy and performance of deposit money banks in Nigeria.*Global Journal of Management and Business Research.* Vol. 12, issue 21 version 1.0 year 2012. ISSN 2249 – 2588

Fernando, N.A. (2015). National Financial Inclusion Strategy, Current State of Practice. AFI Financial Inclusion Strategy Peer Learning Group (FISPLG) 2015

Frost & Sullivan (2009). Bringing financial services to the masses: An NCR White Paper on Financial Inclusion, NCR Corporation, 2009

Georges, O, James, A., & Margaret, C. (20140. The performance of rural banks in Ghana : The ages have past anything recommended for the future. *International review of management and business research,*vol 3, issue 2, June, 2014

G20 Financial Inclusion Expert Group (2010). Innovative Financial Inclusion from Access through Innovation Sub Group of theG20 Financial Inclusion Experts Group, 2010

Harelimana, J.B., (2016). Financial inclusion and financial performance of microfinance institutions in Rwanda: analysis of the ClecamEjohezakamonyi. Bus. Eco J7 269 do : 1047172/2151

Hirtle, B. (2007). The impact of network size on bank branch performance, Federal Reserve Bank of New York, 33 liberty street, New York, NY 10045

Ikram, I., &Lohdi, S. (2015). Impact of financial inclusion on banks profitability: An empirical study of banking sector of Karachi. Pakistan. *International Journal of Management Sciences and Business Research,* October 2015 ISSN )2226- 3235) Vol 4, Issue 10

Kagan, A., Achorya, R.N., Rao, L.S., &Kodapaka, V. (2005).Does internet banking affect the performance of commercial banks? Paper prepared for presentation of American Agricultural Economics Association Annual Meeting, Prividence, Rhode Island, July 74-27, 2005

Kempson, E. (2006). Policy level Response to financial exclusion in developed economies: Lessons for developing countries. Contributions to the Conference: Access to Finance – Building Inclusive Financial System, Washington : World Bank

Kithaka, E. (2011). The effect of mobile banking on financial performance of commercial banks in Kenya. A research project submitted in partial fulfillment of the requirements of degree of the masters of business administration, school of business, university of Nairobi, Kenya

Mbutor, O., & Uba, I.A. (2013). The impact of financial inclusion on monetary Policy in Nigeria. *Journal of Economics and International Finance, Academic Journal,* Vol. 5 (8), pp. 318 – 326

Musiu, D.K. (2005). Relationship between lending interest rates and the financial performance of commercial banks in Kenya. A research submitted in partial fulfillment of the requirements for the award of M.sc in business administration, school of business, university of Nairobi, Kenya

Mwangi, N. S. (2013). The effect of lending interest rates on financial performance of deposit taking microfinance institutions in Kenya. A research project submitted in partial fulfillment of the requirement for the award of M.Sc in Finance, School of Business, University of Nairobi, Kenya. 2014

Nader, A (2011). The effect of banking expansion on profit Efficiency of Saudi Banks. 2nd International Conference on Business and Economic Research (2nd ICBER 2011) Proceedings 269.

Netar, J., Jutner, M.H., Nachshaim, C.J., & Wasserman, W. (1996). *Applied Linear Statistical Models*. (4th Edition). Richard D, Irwin Inc. Burr Ridge Illnois, 2996

Nkwede, F. (2013). Financial inclusion and economic growth in Africa: Insight from Nigeria. *Journal of Business and Management* Vol 7, No 35

Nwala, M.N., &Abubakar, H. S. (2014). Impact of corporate governance on the financial performance of selected banks.*Nasarawa Journals of Administration*, Vol 1, No 1, 2014.

Okun, D.M. (2012). The effect of level of deposits on financial performance of commercial banks in Kenya. A research project submitted in partial fulfillment of the requirements for the degree of masters of business administration, university of Nairobi, Kenya

Onaolapo, A.R. (2015). Effects of financial inclusion on the economic growth of Nigeria (1982 – 2012).*International Journal of Business and Management Review,* Vol. 3, No. 8, September, 2015

Pastor, J.T., Lovell, C.A., &Tulken, H. (2006).Evaluating the financial performance of banks branches.*Ann Oper res* (2006) 145: 321-337.springer science + business media, LLC 2006

Prasetyo, H. &Sunaryo, S. (2015). The branch expansion and the performance of the banks: the case of Indonesia. *Bulletin of monetary, Economics & Banking. Vol,. 18, No* 1, July, 2015

Rachana, T. (2011).Financial inclusion and performance of rural co-operative banks in Gujarat.*Research Journal of finance and accounts* ISSN 2222 – 1697 (paper) ISSN 2222 – 2847, vol 2, NO 6 2011

Shahchara, M. &Tahen, M. (2011).Loans to SME and banking profitability.*Research of Monetary and Banking Institute*, Iran Vol 1, issue 2. 2011

Shao, J. (2003). Impact of Bootstrap on Sample Survey, Statistical Science, 18, 191-198

Thingalaya, D,N, (2012). Role of rural banks in achieving financial inclusion. Bank Quest, 2012

Tuyishime, R., Memba, F., Mbera, Z. (2015).The effects of deposit mobilization on financial performance in commercial banks in Rwanda.A case study of Equity Bank, Rwanda.*International Journal of small business and Entrepreneurship Research.*European Centre for Research Training and Development UK Vol 3, no 6. Pp-44-71 Nov, 2015

Wambari, K.A., &Nwangi, M. (2017).Effects of interest rates on financial performance of commercial banks in Kenya. *International Journal of finance and Accounting (IJFA)*. ISSN xxxxxxxx (paper) ISSN 2518 – 4113 (online) vol. 2 Issue 4, pp 19-35, 2017

Watts, R.L., & Zimmerman, J.L. (1979). The demand for and supply of accounting theories: The market for excuses. *The Accounting Review* Vol. LIII, No 2.

World Bank (2015).Measuring financial inclusion around the World.The Global Findex Data Base Accessed http/worldbank.org./en/programs/globalfindex. September, 2016

Yoshino, N., & Morgan, P. (2016).Overview of financial inclusion, regulation and education. Asian Development Bank Institute. *ADBI Working Paper No 591,* Tokyo