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Prof. Abdurrahman Isik  
Prof. Benedict Akanegbu  
Dr. Julius Bala

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Bilal KELES

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[icss.nileuniversity.edu.ng](http://icss.nileuniversity.edu.ng) - [icss@nileuniversity.edu.ng](mailto:icss@nileuniversity.edu.ng)

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## FOREWORD

Nigerian Turkish Nile University (NTNU) established first conference on social science on May 2015 aim of the conference help to bring up the true scientists, who base their study and research on true reports, correct exposition, and scientific experiments. As a result, they have peace of mind and solve their problems with ease. However these who do not know the truth are buffeted constantly by changing aims and methods, and so are always disillusioned.

The 2 nd International Conference on Social Science and Law-Africa (ICSSL-Africa) was held at NTNU in Abuja, Nigeria from May 11to 12 2016. The international conference focused on new advance in research in the field of social sciences especially Business Administration, Finance and Accounting, Economics, Political Science and International Relations, Law, Mass Communication and Public Administration disciplines, and included representatives from academia, industry and government. The invited speakers presented new and original unpublished data as well as ongoing controversies.

In order to close the gap between gown and town, beside the conference an Entrepreneurs Trade Fair was organized. With the help of this fair not only academic side also real sector side of life were included to this discussion as well.

ICSSL-Africa is organized in corporation with partner universities, companies and governmental and non-governmental institutions. As we multicultural, multilingual and multidisciplinary we pride ourselves on advancing the scholarly study of various scientific disciplines by encouraging and facilitating excellence in academic research worldwide.

On behalf of the ICSSL-Africa conference organizers, I want to thank to partner universities, Meliksah University, Turgut Ozal University and Fatih University, collaborators Abuja Chamber of Commerce, Association of Investors and Businessmen of Turkey and Nigeria (ABINAT) and sponsors Zeberced Group and Nizamiye Hospital. We hope that you enjoy reflecting and discussing the proceedings with your colleagues.

Finally, ICSSL-Africa organizing committee decided to organize 3 rd ICSSL-Africa on May 10- 11 2017. We are very happy to invite you to our university again next year.

On the behalf of the organizing committee

Assoc.Prof.Dr.Abdurrahman IŞIK



## PUBLIC HEALTH EXPENDITURE AND INCLUSIVE GROWTH IN NIGERIA

LAWONG, Damian Bernsah, (PhD)

Department of Economics, Ahmadu Bello University (ABU), Zaria, Nigeria

lawongd@yahoo.com

### *Abstract*

*The study examines the relationships between public health expenditure and inclusive growth in Nigeria. Public expenditure on health was used as a proxy for health expenditure, while inequality was proxied by Gini\_Net and Gini\_Market. Stochastic properties of the time series data were carried out such as descriptive statistics, correlation matrix and stationarity test to inform the econometrics techniques. Econometric analysis were carried out such as lag length selection criteria, diagnostics test such serial correlation LM test and CUSUM and CUSUM of Square tests. The error correction test was also conducted and the causality inferred from it. The results show that the speed of adjustment for the Gini\_Net model was 8%, while for Gini\_Market was 13%. The policy relevance of the study is that the Nigeria government should improve on it health expenditure on a large scale if inclusive growth from the point of view of health expenditure is to be achieved.*

**Keywords:** Health Expenditure, Inequality and inclusive growth

### 1. Introduction

Given the national aggregate health indicators, Nigeria has witnessed significant achievements in the past few decades especially given the investment that has been made. The expenditure on health comes from various sources: government at all levels, loans and grants from the donor and partners, private sector contribution and out-of-pocket expenditure (Agbatogun and Taiwo, 2012). The total government expenditure and total health expenditure growth rate amounted to N583.29m and 30.04 per cent in 1980-1993 and change to N41,190.95m and 29.30 per cent in 1994-2007 respectively (Agbatogun and Taiwo, 2012). The public spending per capita is below 5 USD and the budgetary allocation was 4.25 per cent in 2005.

Despite the commitment in health investment inclusive growth indicators do not seem to have been impressive. Though the investment in the sector is abysmally low as compared with its peers and international benchmark, the investment in health is expected to have improved inclusive growth indicators beyond what prevails. The inclusive growth indicators for the country are low indicating that the country has not trailed well on its path to inclusive growth. The poverty indicator show that life expectancy between 1999-2010 was 54 years, child nutrition at 24 per cent, basic literacy for the age group 15 – 24 amounted to 66 per cent and 55 per cent of the citizens had income below the poverty line (McKingsey Global Institute, 2014). Public spending on health amounted to \$29 per capita yet, 127 of every 10,000 children die before their fifth birthday (McKingsey Global Institute, 2014). Between the period 2010-2013 the public health expenditure as percentage of total health expenditure was 29.5 (World Bank, 2014).

Other inclusive growth indicators in 2013 show that Nigeria's figures are either lower than its peers or below the international benchmark: human development index 0.5, mean year of schooling of adult 5.20, life expectancy at birth 52.50, health index 0.50, inequality adjusted life expectancy index 0.30, inequality adjusted income 0.39, inequality adjusted HDI value

0.30 and inequality adjusted education index 0.23 (Human Development Report, 2014). This coupled with the fact that policies and health programs have been piecemeal and short-termism, showing a clear neglect of public and private health care. There is also the inability to respond to the epidemiological transition coupled with the poor health system, this adds to the already existing health problems.

Given the different strands of literature in the new endogenous growth theories of Romer (1986) and Lucas (1988); Rebelo's (1991); Barro (1990); Grossman and Helpman (1990 and 1991), (Sena and Fontenele, 1998). It is very clear that the models that used the AK-technology, where constant returns prevails, due to the accumulation of all forms of capital - physical, human and knowledge would be useful for the study.

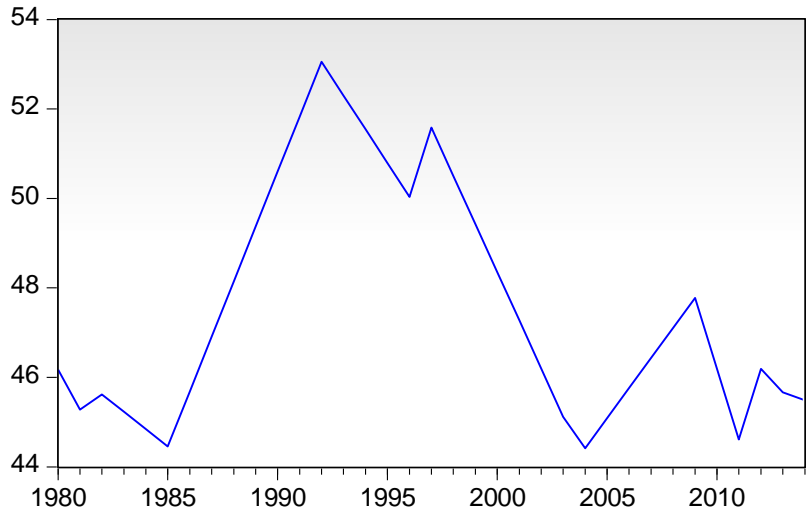
Despite the few existing empirical studies this current study builds on (Asif and Sultan, 2013; and Alami, 2013) by using descriptive statistics, regression analysis and causality test to examine the impact of health investment on inclusive growth in Nigeria. The objective of the study is to examine the impact of health investment on inclusive growth.

The results are expected to show the extent to which health investment has impact on inclusive growth in Nigeria with implication for inclusive growth promoting. The paper is organized as follow section 1, introduction; section 2, background; section 3, literature; section 4, methodology; section 5, results and discussions and section 6, summary, conclusion and policy recommendation or implications.

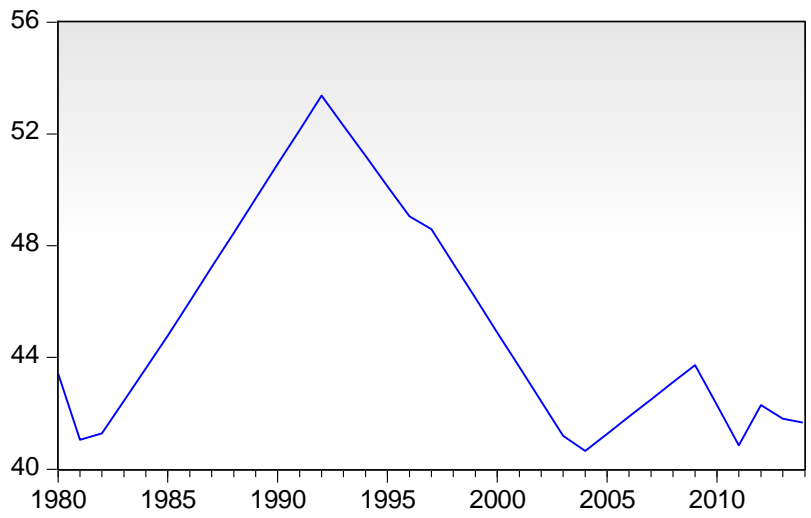
## **2. Background or overview**

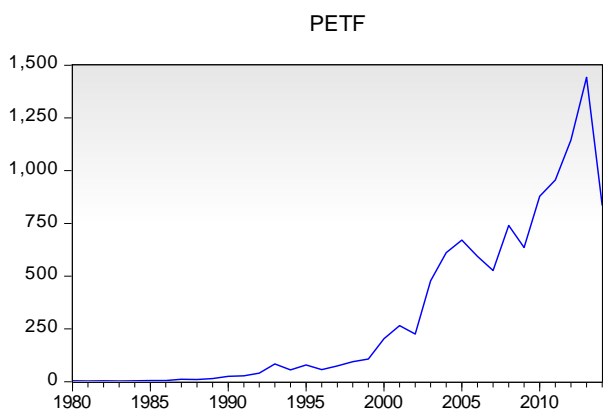
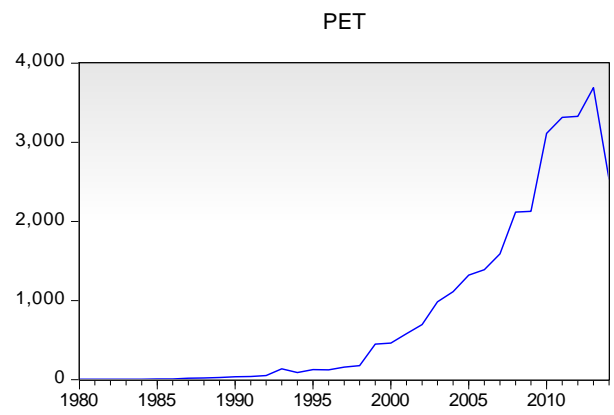
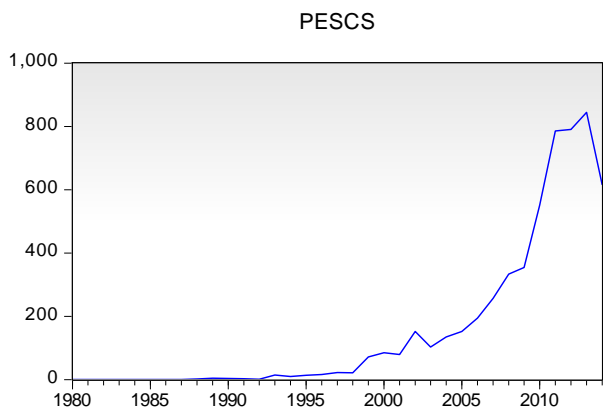
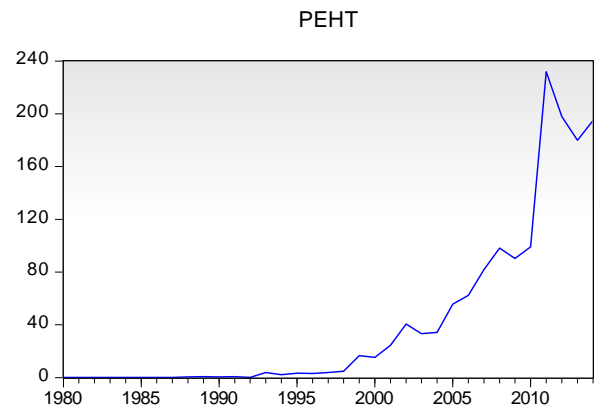
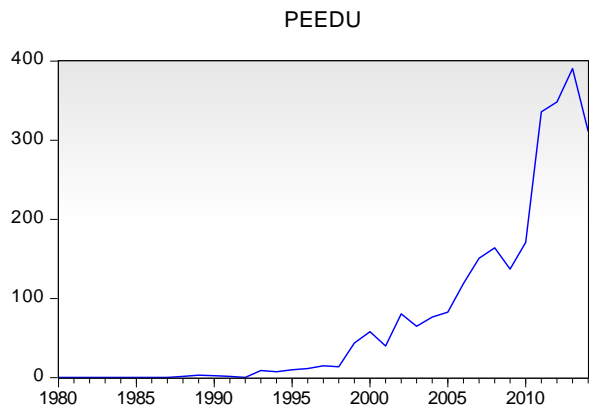
Trends in health expenditure have fluctuated over the sample period 1995-2014. Health expenditure had been on a decline since 1995 for most variables used to capture health expenditure (see figure 2.1). This is with the exception of the out-of-pocket health expenditure to health expenditure (HEOPPHE) which has been stable over a considerable period of time and out-of-pocket health to total health expenditure HEOPTHE which has been on the increase though at a declining trend. The trend suggests that the trickle down from health expenditure to inclusive growth may not be substantial to produce meaningful growth.

GINI\_MARKET

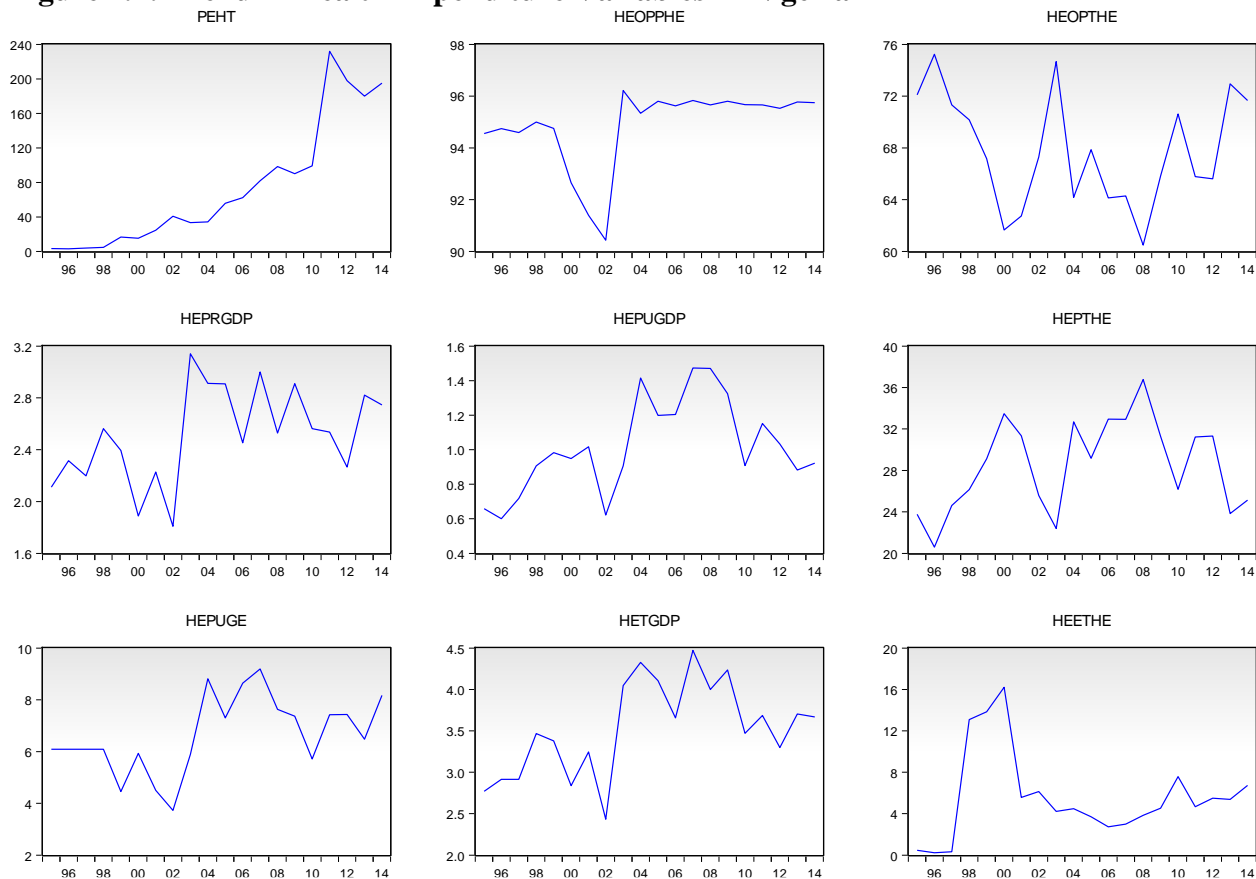


GINI\_NET



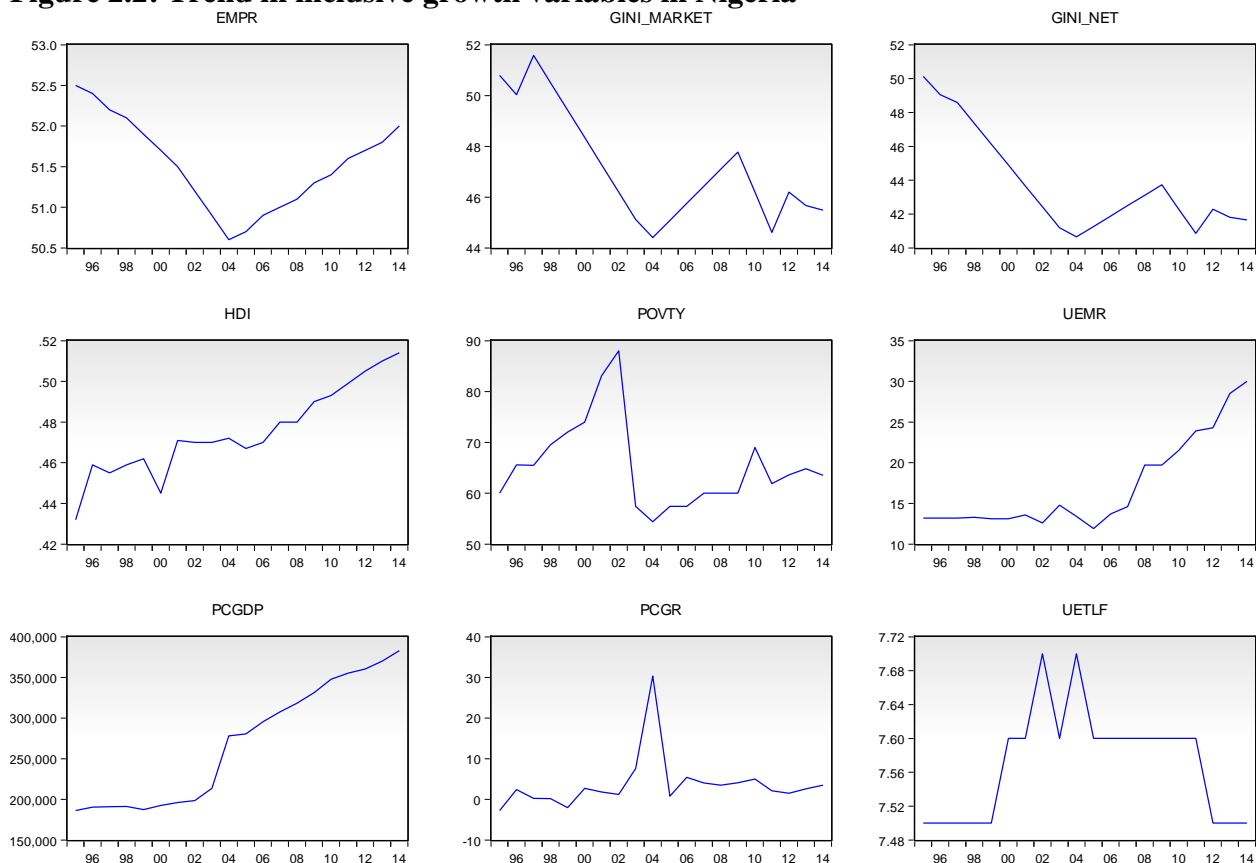


**Figure 2.1: Trend in Health Expenditure Variables in Nigeria**

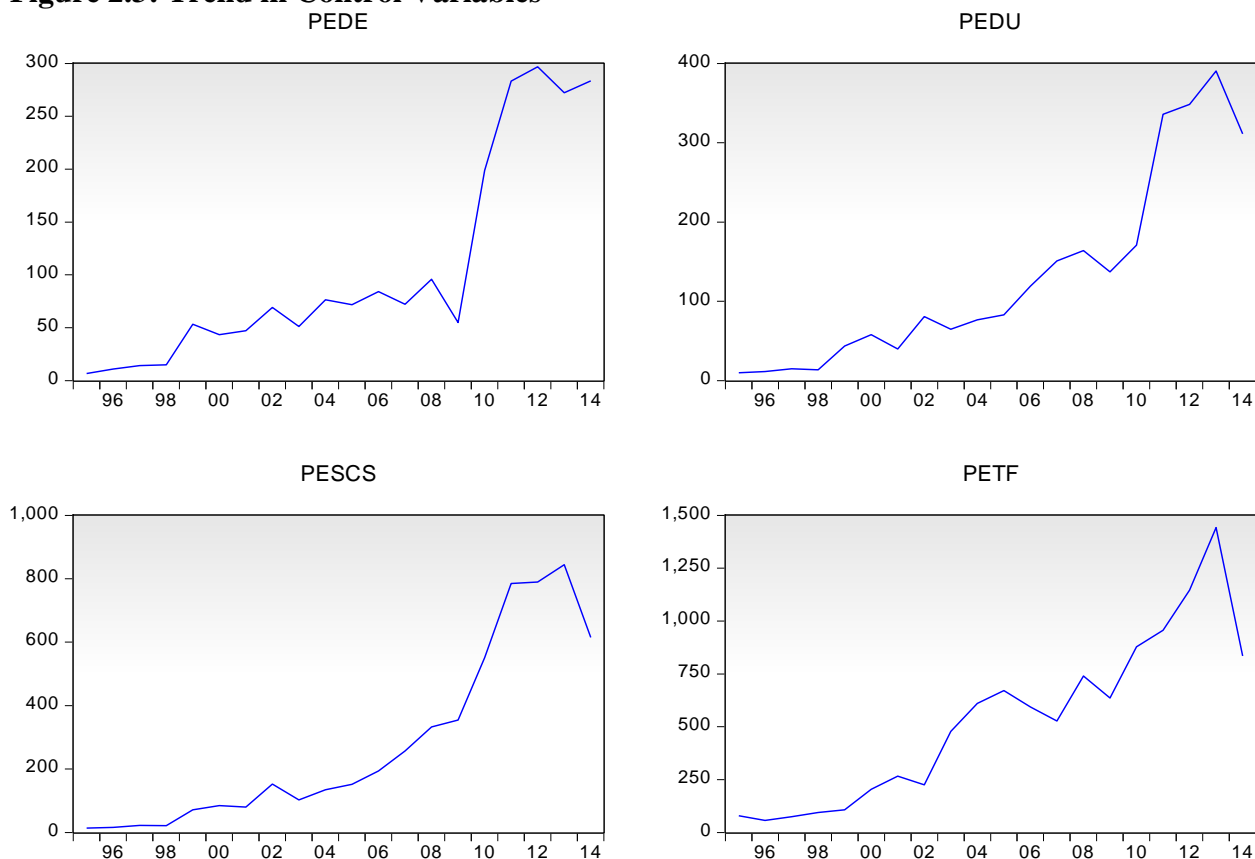


Inclusive growth variables have not performed well over the sample period. Gini\_net, Gini\_market povty, pcgdp, uetlf had been on the decrease (see figure 2), similarly, uemr had been on the increase. There are actually increase in empr, hdi and pcgdp, however, this are marginal increases. The trend suggests that health expenditure might not have been meaningful to promote inclusive growth. However, this conclusion has some limitations because of other variables that may affect health expenditure that have not been taken into consideration because of the limitation of the univariate and descriptive statistics. This limitation will be overcome by the econometrics analysis.

**Figure 2.2: Trend in inclusive growth variables in Nigeria**



The trends show that the control variables (PEDE, PEDU, PESCS and PET) had been on the gradual increase from 1995-2008 and a sharp increase from 2008- 2012 and experienced a decline from 2012 to 2014. The trends tend to suggest that impact of the control variables on inclusive growth is expected to have gradual impact on inclusive growth from 1995-2008 and a sharp increase from 2008-2012 and a decline from 2012 to 2014 while holding other variables constant (see figure 2.3).

**Figure 2.3: Trend in Control Variables**

### 3.0 Literature Review

#### 3.1 Conceptual Review

Before the conceptualization of inclusive growth, it is important to trace the development that led to the concept of inclusive growth. This is important in order to highlight the importance and the place of the concept of in the economic growth and development literature. Inclusive growth was first introduced and propagated by the World Bank in the 21<sup>st</sup> century. Inclusive growth evolved from the concept of growth and development and has gotten a significant place in the literature on growth and development (George, 2011). Before the concept of inclusive growth economic growth was the pre-requisite for economic development and many developing countries were trying to make their growth a developmental one. However, from the 1960s economic growth and development were accompanied by poverty and inequality. Economic growth and development accompanied by poverty and inequality was a surprise to the theoretical position of most growth theories at the time (George, 2011). In addition, most growth and development were always achieved with a lag due to slow trickle-down effect of growth to development from the rich to the poor. This implies that the benefit of growth first goes to the rich before trickling down to the poor. For instance, in Brazil in the 1970s, for the four decades of rapid economic growth income distribution and poverty worsened (George, 2011). It was then that the concept of inclusive growth emerged which is conceptualize as everyone participating in the growth and development dividends.

According to the World Bank inclusive growth requires a rapid pace of growth, which is broad-based across sectors and include a large part of a country's labour force (Ianchocvichina and Lundstrom, 2009). According to the African Development Bank growth

is inclusive only if everyone participates in and contributes to the growth dividend (Rauniyar and Kanbur, 2009). This was later refined by African development Bank (AfDB) by emphasizing that inclusive growth occurs, when the economic opportunities created by growth are available to all and the poor in particular. According to UNDP (2010) growth is inclusive when it takes place in sectors in which the poor works (e.g. agricultural), occurs in places where the poor live (e.g. relatively backward area) use factors of production that the poor possesses (e.g. unskilled labour) and reduces the prices of consumption in items that the poor consume (e.g. food, fuel and clothing (UNDP, 2011). Inclusive growth is defined as growth that is sustained over several years, is broad-based across economic sector and create productive employment opportunities for its majority of the country's population (Rodrigo and Garcia-Verdu, 2011 and IMF, 2011). Inclusive growth refers to both the pace and distribution of economic growth (Anand, Tulin and Kumar 2014). Inclusive growth wants growth to benefit all stripes of society, including the poor, the near-poor, middle income groups, and even the rich" (Klasen, 2010). Inclusive growth is intimately related to **pro-poor growth**, particularly with its relative conceptualization that requires that both poverty and inequality be reduced for growth to be pro-poor (Raquel and Ramos, 2013). Inclusive growth refers to a long-term sustained economic growth that is broad-based across sectors and inclusive of a large part of a country's labour force, thereby reducing unemployment significantly (Groepe, 2012).

From the concept of inclusive growth common features among the propagators are very clear: (i) issue of employability and the issue of everyone participating in the dividends of growth and development. Every one participating in the dividend of growth and development implies that growth and development are the pre-requisite for inclusive growth. This common ground is in consonant with the current paper usage of employment to proxy inclusive growth.

With regard to the concept of public health expenditure, it consists of recurrent and capital spending from government budgets, external borrowings and grants. This includes donations from international agencies and nongovernmental organizations, and social health insurance funds (World Bank, 2015). Public expenditure on health refers to expenditure on health care incurred by public funds. Public funds are state, regional and local Government bodies and social security schemes (OECD, 2001). The common features in the definition are that public health expenditure is expenditure on health expended by government whether the funds are generated or donated to government is immaterial. In the current study expenditure at all tiers of government devoted to health care will be captures as government expenditure.

### 3.2 The Public Spending and Inclusive Growth

Fiscal policy can reduce inequality (inclusive growth) either through spending or revenue or taxation. However, the evidence suggests that the impact from public spending is more pronounced (Bastagli, Coady, and Gupta 2012 and Claus, Martinez-Vazquez, and Vulovic 2014). Expenditures, especially transfers contributed more to income redistribution than did taxes (Bastagli, Coady, and Gupta, 2012). However, expenditure on health and education could be considered to the greatest. Public spending which is best able to reduce inequality is health and education has the greatest impact. The study of 150 countries from 1970 to 2009 shows that despite the progressive tax systems put in place government expenditures were found to have more effect of redistributing income than taxes. For instance, government expenditures on health care and education have been found to reduce income inequality in Asia and the rest of the world (Estrada, Lee and Park, 2014). However, how public spending is used across populations will have implications for inclusive growth. For instance, putting



emphasis on programs and interventions that could be pro-poor, such as education and health care, and social security can enforce inclusive growth (Estrada, Lee and Park, 2014). Certain types of spending and the category of the population that enjoys it suggest that they could be more equity-promoting than others given their broad-based. Furthermore, a vital issue is that programs that are equity driven should target the poor (Estrada, Lee and Park, 2014).

### 3.3 Theoretical Literature

There are different strands of contending theories explaining health investment and inclusive growth from the broader to specific. These theories can be grouped into three broad categories: the first category is the Keynes and Adolph Wagner; the second - Solow and the third - Musgrave and Rostow, Lucas and Rommer and the Schumpeterian theory. The first category starting with Keynes he considers increase in government expenditure especially in government infrastructure to promote economic growth (Ebiringa and Charles-Anyago 2012, pp.83) and via the multiplier interaction processes (Maitra and Mukhopadhyay 2012, pp.19). Adolph Wagner law of public expenditure is similar with Keynes theory Wagner posits that when the per capita income of a country increases the government would also raises government expenditure. That is GDP growth causes a rise in government expenditure (Maitra and Mukhopadhyay 2012, pp.19). He notices that there is a tendency for the state activities to increase intensively and extensively making it possible for a relationship to exist between state economic activities and the growth of the economy (Bakare and Sanmi 2011, p.84). This implies that the government sector grows faster than the economy. Wagner views were supported by Witt who posited that it was common for the government at all levels to increase government expenditure with the growth of the economy (Bakare and Sanmi 2011, p.84). The increase in expenditure prompted by the increase in the activities of the government beyond defense, justice, law and order and the maintenance of state and social overheads, redistributing income and wealth and welfare. He further explain that as output increases in a community, expenditure also increases as well and therefore public sector expenditure is associated with output growth in developing countries (Adelowokan 2012, p.513). The growth in public sector activities is as a result of industrialization and public sector activities such as administration, productive functions also increases (Adelowokan 2012, p.513). Also, the state role in maintaining law and order, economic activities, economic regulation, urbanization and industrialization increases (Adelowokan 2012, p.513). These responsibilities should leads to spending since high income elasticity of demand for these services increases (Adelowokan 2012, p.513). This implies that as income per capita increase the demand for these services also increases and raises the share of government spending in GDP. More, he explains that technological change and the growing number of firms would create monopolies and government would be saddled with the responsibility of regulations thereby adding to government economic activities (Adelowokan 2012, p.513). These would again leads to increase in government expenditure which are mainly derives from increase state social activities of countries that are making progress and expansion is spending is connected with increasing social progress and the expansion should be quantitative and qualitative (Adelowokan 2012, p.513).

The second group of theory is the (Solow 1956) model that includes capital and neglect human capital as an aspect of growth. He postulates that saving/ investment and population growth are major determinants of economic growth (Gisore, Kiprop, Kalio, Ochieng and Kibert 2014, p. 293). Thus, higher saving/investment lead to accumulation of more capital per head and therefore increase output per head (Gisore, Kiprop, Kalio, Ochieng and Kibert 2014, p. 293). On the contrary higher population growth has a negative effect on economic

growth because higher fraction of saving/investment has to keep capital-labour ratio constant (Gisore, Kiprop, Kalio, Ochieng and Kibert 2014, p. 293). The model assumes that technological progress which grows at a steady state is what determines output growth (Gisore, Kiprop, Kalio, Ochieng and Kibert 2014, p. 293). The Solow model also posits that the level of saving capital accumulation affects growth in the transitional period. The model however, neglects human capital which is a vital input in determining growth (Kurt, 2015, p.443). Even though the expanded version of it included human capital it still did not explain how the growth occur (Gisore, Kiprop, Kalio, Ochieng and Kibert 2014, p. 293).

The last group of theories are Musgrave and Rostow; Lucas and Romer; and the Schumpeterian. The consensus in this group is that economic growth can be achieved via human capital investment including education and health and other forms of growth indicators. However, the dimensions differ from one theory to another within the group to another. Starting with Musgrave and Rostow they posit that provision of social and economic infrastructure tends to increase productivity which is necessary to take up the economy into middle stage of economic and social development (Gisore, Kiprop, Kalio, Ochieng and Kibert 2014, p. 293). The supply of these investments by the public sector is complemented for by the private sector investment. The control of these investments in the economy by the government leads to market failure and the government have to intervene to correct market failure (Gisore, Kiprop, Kalio, Ochieng and Kibert 2014, p. 293). Once the economy reaches maturity the expenditure shift from infrastructure to education, health and welfare services and it tends to promote growth (Gisore, Kiprop, Kalio, Ochieng and Kibert 2014, p. 293). The Lucas 1988; and Romer 1990) posit that expenditure on education and health have been justified in endogenous growth theory (Lucas 1988; and Romer 1990). In the endogenous model, technological progress, which increases productivity and account for the pace of growth, can be determined within the model through the formation of human capital (Maitra and Mukhopadhyay 2012, p. 23). Expenditure on education and health help promote efficiency, knowledge and inventions which contribute to economic growth of in an economy (Maitra and Mukhopadhyay 2012, p. 23). Therefore in Lucas and Romer's model capital is not limited to physical capital but knowledge, skill and experiences owned by the labour input (Maitra and Mukhopadhyay 2012, p. 23). Growth is considered as a function of human capital. The components of human capital are knowledge, skills, abilities and experiences acquired via health and education (Maitra and Mukhopadhyay 2012, p. 23). Therefore expenditure on education and health increases human capital and impact on growth (Maitra and Mukhopadhyay 2012, p. 23). In this third group is the Schumpeterian theory also identifies the channels through which health status may affect long-run growth (Maitra and Mukhopadhyay 2012, p. 23). Health is treated in Schumpeterian theory as a component of human capital. Therefore, it contributes to relative productivity and per capital GDP. These are via efficiency, skill accumulation, research efficiency and intensity (Onisanwa, 2014, p. 162). From the review it is clear that since this study is on health investment and inclusive growth the suitable theories are the third category: Musgrave and Rostow; Lucas and Romer; and the Schumpeterian. They emphasize the link between health investment and growth via health investment.

### 3.4 Empirical literature

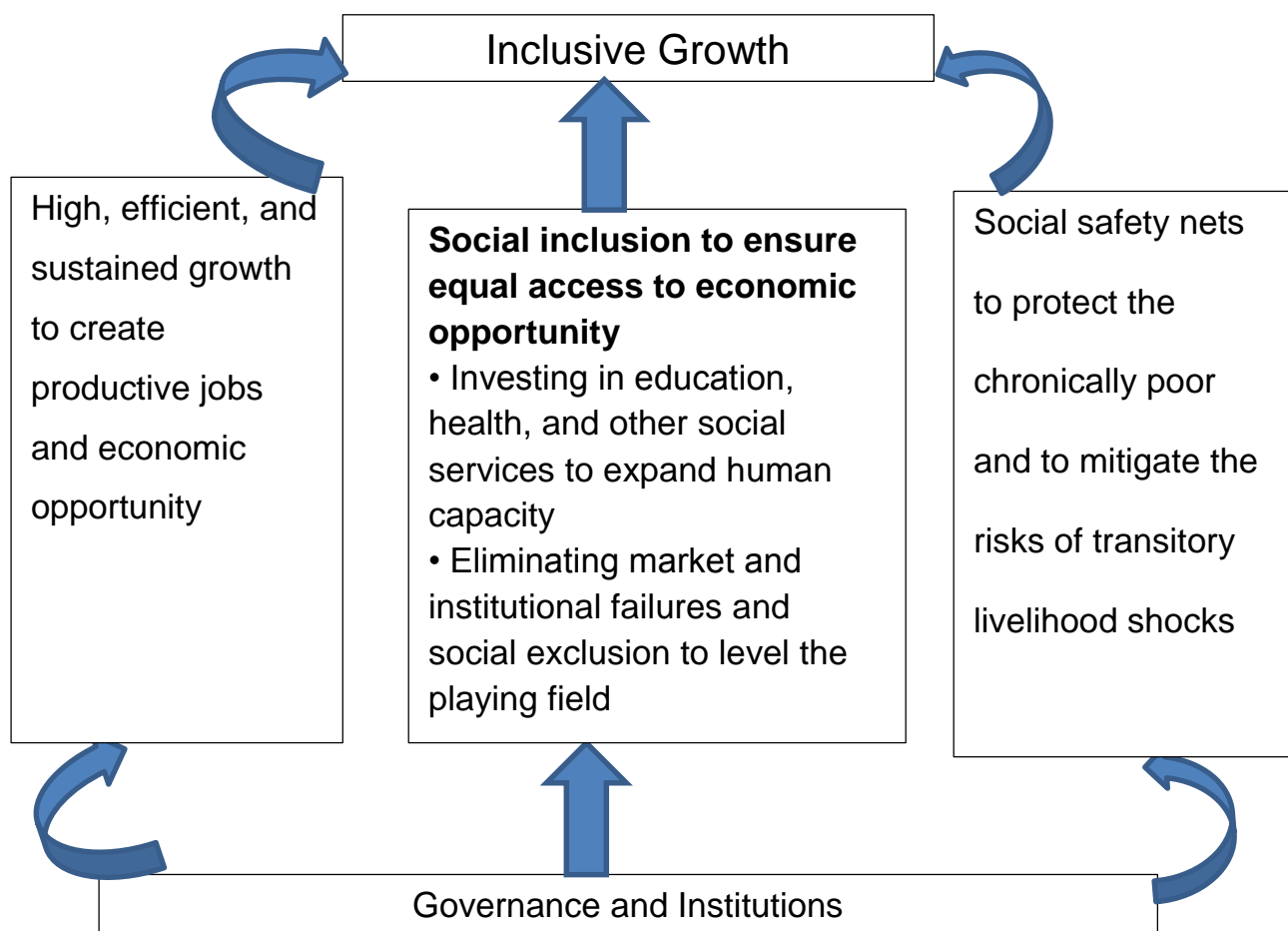
To the best of my knowledge there are four empirical studies linking health investment (expenditure) and inclusive growth: Asif and Sultan (2013) for India; and Alami (2014) for Middle East and North Africa (MENA); Estrada, Lee and Park (2014) and (Hur 2014) for Asia Development Bank (ADB) Members. I categorized the study into two broad groups: (i)

Asif and Sultan (2013) for India is a case country study and Alami (2014) for Middle East and North Africa (MENA); Estrada, Lee and Park (2014) and (Hur 2014) for ADB members are cross country study. Starting with the first group Asif and Sultan (2013) investigates the impact of inclusive growth on per capita income for India. The data was first tested for unit root before cointegration test was conducted for the dependent and the independent variables. The results show that there was no cointegration among the variables. For the second group of studies starting with Alami (2014) conducted a study on the impact health expenditure and social policy and inclusive growth for Middle East and North Africa (MENA) countries. He uses descriptive statistics for health care outcome indicators and different definition of health expenditure. The descriptive statistics show that health care outcome indicators are below average as compared with other regions of the world and health care expenditures are also below average. A similar study in this category is by Estrada, Lee and Park (2014) for ADB members and examines the impact of government spending on inclusive growth including health expenditure. Using descriptive statistics government expenditure including expenditure on health care were examined vis-à-vis health care outcome measures such as under 5 mortality rate per 1,000 live birth and birth attended by skilled health personnel. Implicitly, it was deduced that health care spending has an impact on inclusive growth in the region. In this category Hur (2014) also assess the effect of fiscal policy on both equity and growth for 33 out of 48 ADB members and 34 OECD members. He uses dependent variables such as Gini Net, Gini Gross, real GDP and independent variables such as government final consumption expenditure, gross capital formation, military expenditure social transfers and subsidy, spending on health, spending on education and other control variables. Descriptive statistics as well as panel vector auto regression techniques were used to realize the objectives of the study. The result reveals that public spending on health and education alleviate inequality in ADB members and thus fiscal expansion may contribute more to growth. From the review it is very clear that the second category are cross country study and the assumption is that the economic condition in these countries are same which may not necessary be the case. Therefore, the results may not be reliable for individual countries. Given that limitation this current intends on Nigeria which the results will be country specific and reliable for Nigeria. Even though Asif conducted for a specific country (India) the health expenditure for Nigeria and India are not the same and therefore the result may not be applicable for Nigeria. India allocates a greater chug of the national budget in health expenditure than in Nigeria.

## 4.0 Methodology

### 4.1 Conceptual Framework

The conceptual framework for inclusive growth is depicted in figure 4.1 and suggests that inclusive can be attained among other variables via health expenditure.

**Figure 4.1: Conceptual framework for inclusive growth**

Source: Zhuang (2010) cited in ADB (2011, p.5)

## 4.2 Data Description and Sources

The inequality variables used are Gini\_Net and Gini\_Market; the health expenditure variables used is public health expenditure (PEHT), while the control variables are public expenditure on social and community services (PESCS), public expenditure on education (PEEDU), public expenditure on transfers (PETF), public expenditure total (PET) and public expenditure. The data used is from the period 1980-2014 and were sourced from the central bank of Nigeria statistical bulletin (various issues) and from the World Bank Development Indicator (online) 2015.

## 4.3 Empirical Framework

The inspiration for the specification is drawn from Asif and Sultan (2013), in their analysis of health care expenditure and inclusive growth in India. However, the current study departs from it because the proxy for inclusive growth included in the current study seems to track inclusive growth better than per capita income used in the aforementioned study. The models in functional which are as follow:

$$Gini_{Net} = f(PESCS, PEEDU, PEHT, PETF, PET)$$

$$Gini_{Market} = f(PESCS, PEEDU, PEHT, PETF, PET)$$

and expressed econometric form as:

$$\Delta Gini_{Net_t} = \beta_0 + \beta_1 \Delta PESCS_{t-i} + \beta_2 \Delta PEEDU_{t-i} + \beta_3 \Delta PEHT_{t-i} + \beta_4 \Delta PETF_{t-i} + \beta_5 \Delta PET_{t-i} + \phi_{t-1} + e_t \quad (1)$$

$$\Delta Gini_{Market_t} = \beta_0 + \beta_1 \Delta PESCS_{t-i} + \beta_2 \Delta PEEDU_{t-i} + \beta_3 \Delta PEHT_{t-i} + \beta_4 \Delta PETF_{t-i} + \beta_5 \Delta PET_{t-i} + \phi_{t-1} + e_t \quad (2)$$

The variables are as defined previously, while  $\beta_0 - \beta_5$  are the parameters to be estimated,  $\phi_{t-1}$  and  $e_t$  are the error correction terms and error terms respectively.

### 4.3 Estimation Techniques

Descriptive statistics, correlation analysis, unit root tests are conducted to understand the time series properties of the data. The diagnostic tests are carried out to validate the models. The AIC and the SIC analysis are used to select the best models. The extent to which changes in health expenditure makes the system to readjust is determined by using error correction model (ECM). Causality is also inferred from the error correction model.

## 5.0 Results and Discussions

### 5.1 Descriptive Statistics

The kurtoses are all positive while the Jarque-Bera statistic for the variables are significant at 5% and suggest that the series are not normal distribution. The standard deviation for the series is quite high suggesting that the time series may not have mean reversion properties. This implies that stationarity test be conducted among the series.

The correlation matrix (see table 5.2) suggest that the strength of association between variables (Gini\_Net, Gini\_Market, PCGDP, PESCS, PEEDU, and PET PCGR, PEEDU and PEHT) used for the econometrics work are very strong with the exception of PCGR. The strong strength of the association further underscores the need to embark on an econometrics analysis to deepen furthermore into the relationship for better policy inferences.

**Table 5.1: Descriptive Statistics**

	<b>GINI_NET</b>	<b>GINI_MARKET</b>	<b>PCGDP</b>	<b>PCGR</b>	<b>PESCS</b>	<b>PEEDU</b>	<b>PEHT</b>	<b>PETF</b>	<b>PET</b>
Mean	45.2401	47.57263	243892.9	1.06097	160.4283	75.70076	42.29813	311.8615	852.6274
Median	43.6602	46.43179	211302.8	1.508833	21.44143	13.58949	3.891099	83.74725	158.5635
Maximum	53.3735	53.05701	383023.4	30.34224	844.0674	390.4248	231.8	1441.955	3689.08
Minimum	40.6503	44.41287	172402.7	-15.4583	0.288914	0.162154	0.041315	3.392902	4.7508
Std. Dev.	3.90658	2.609425	65810.65	7.473738	252.6261	111.8812	65.77236	391.634	1151.153
Skewness	0.62631	0.633433	0.819582	1.161453	1.680581	1.644784	1.669579	1.188901	1.250104
Kurtosis	2.0245	2.031805	2.181954	8.618167	4.517608	4.579785	4.630259	3.436262	3.212371
Jarque-Bera	3.67595	3.707597	4.894255	53.89954	19.83413	19.4206	20.13627	8.522888	9.18187
Probability	0.15914	0.156641	0.086542	0	0.000049	0.000061	0.000042	0.014102	0.010143
Sum	1583.4	1665.042	8536253	37.13396	5614.992	2649.527	1480.434	10915.15	29841.96
Sum Sq. Dev.	518.886	231.5093	1.47E+11	1899.13	2169879	425591.5	147084.1	5214824	45055243
Observations	35	35	35	35	35	35	35	35	35

**Table 5.2: Correlation matrix**

	<b>GINI_NET</b>	<b>GINI_MARKET</b>	<b>PCGDP</b>	<b>PCGR</b>	<b>PESCS</b>	<b>PEEDU</b>	<b>PEHT</b>	<b>PETF</b>	<b>PET</b>
GINI_NET	1	0.916101	-0.648482	-0.174633	-0.49987	-0.519752	-0.519982	-0.573097	-0.552057
GINI_MARKET	0.916101	1	-0.531683	-0.113755	-0.37973	-0.392629	-0.402744	-0.427671	-0.407862
PCGDP	-0.64848	-0.531683	1	0.281106	0.872575	0.867011	0.875967	0.873897	0.896761
PCGR	-0.17463	-0.113755	0.281106	1	0.21981	0.243008	0.220083	0.374473	0.302878
PESCS	-0.49987	-0.37973	0.872575	0.21981	1	0.986612	0.978139	0.940163	0.976136
PEEDU	-0.51975	-0.392629	0.867011	0.243008	0.986612	1	0.984377	0.945661	0.961063
PEHT	-0.51998	-0.402744	0.875967	0.220083	0.978139	0.984377	1	0.916243	0.951919
PETF	-0.5731	-0.427671	0.873897	0.374473	0.940163	0.945661	0.916243	1	0.976756
PET	-0.55206	-0.407862	0.896761	0.302878	0.976136	0.961063	0.951919	0.976756	1

## 5.2 Unit Test Results

The unit root test results are presented in Table 5.3. The results show that Gini\_Net, Gini\_Market, PCGDP, PESCS, PEEDU, and PET are integrated of order 1 I(1), while PCGR, PEEDU and PEHT are integrated of order zero I(0). The results are conducted at the 5% significance level. The results suggest that the bound testing technique be used since the variables are I(0) and I(1) and not I(2) (see table 5.3). The result also implies that conducted the bound testing technique at the level of the series could have led to misguided policy decisions. This underscored the need to always determine the stochastic properties of the data prior to the estimation techniques.

**Table 5.3: Sationarity Test Result for the Variables used for the Estimation**

s/n	Variable	ADF at Levels	ADF at 1 <sup>st</sup> Difference	C.V(5% at the Level of the Stationarity of Data)	Level of Integration
1	Gini_Net	-3.195299	-3.743828	-3.552973	I(1)
2	Gini_Market	-1.909489	-3.980398	-3.552973	I(1)
3	PCGDP	-2.505136	-5.853583	-3.552973	I(1)
4	PCGR	-5.521662	-	-3.548490	I(0)
5	PESCS	4.918268	-	-3.595026	I(1)
6	PEEDU	4.474753	-	-3.568379	I(0)
7	PEHT	4.373329	-	-3.595026	I(0)
8	PETF	-0.151396	-5.798798	-3.580623	I(1)
9	PET	0.547950	-3.851372	-3.568379	I(1)

Source: Extracted from the ADF test results estimated using e-views version 8

## 5.3 The lag Length Criteria Results

The bound testing procedure requires that the lag length for the variables are known. The lag length of 2 for the 2 models were selected based on the least Akaike Information criteria (2.036538) and Schwarz criteria (2.906838) for the Gini\_Net model and Akaike Information criteria (2.936749) and Schwarz criteria (3.80703) for the Gini\_Market model (see table 5.4).



Table 5.4: The Results of Lag Length Criteria

D(GINI_NET)				D(GINI_MARKET)			
Variable	Coefficient	t-Statistic	Prob.	Variable	Coefficient	t-Statistic	Prob.
C	6.271233	2.632701	0.0207	C	8.48869	2.008859	0.0658
D(GINI_NET(-1))	0.693265	3.023302	0.0098	D(GINI_MARKET(-1))	0.465935	1.868	0.0845
D(GINI_NET(-2))	0.069127	0.361879	0.7233	D(GINI_MARKET(-2))	0.266873	1.039824	0.3174
D(PESCS(-1))	-0.06728	-0.98787	0.3412	D(PESCS(-1))	-0.12669	-1.19509	0.2534
D(PESCS(-2))	-0.10815	-1.29663	0.2173	D(PESCS(-2))	-0.19094	-1.47031	0.1653
D(PEEDU(-1))	0.006043	0.13771	0.8926	D(PEEDU(-1))	-0.04181	-0.60556	0.5552
D(PEEDU(-2))	0.122295	1.692209	0.1144	D(PEEDU(-2))	0.20395	1.826015	0.0909
D(PEHT(-1))	0.057935	0.403464	0.6932	D(PEHT(-1))	0.180596	0.820476	0.4267
D(PEHT(-2))	0.002717	0.040748	0.9681	D(PEHT(-2))	0.057244	0.561543	0.584
D(PETF(-1))	-0.03194	-1.08667	0.2969	D(PETF(-1))	-0.06673	-1.45353	0.1698
D(PETF(-2))	-0.02723	-1.21572	0.2457	D(PETF(-2))	-0.04875	-1.40223	0.1843
D(PET(-1))	0.025159	1.188396	0.2559	D(PET(-1))	0.049823	1.502271	0.1569
D(PET(-2))	0.025657	1.269315	0.2266	D(PET(-2))	0.047811	1.516125	0.1534
GINI_NET(-1)	-0.12988	-2.63929	0.0204	GINI_MARKET(-1)	-0.17598	-1.98822	0.0683
PESCS(-1)	0.106997	1.146772	0.2721	PESCS(-1)	0.20714	1.423351	0.1782
PEEDU(-1)	-0.12575	-1.99857	0.067	PEEDU(-1)	-0.17607	-1.89101	0.0811
PEHT(-1)	0.043496	0.361301	0.7237	PEHT(-1)	-0.04022	-0.22491	0.8255
PETF(-1)	0.030614	1.237903	0.2376	PETF(-1)	0.059232	1.546745	0.1459
PET(-1)	-0.02312	-1.2612	0.2294	PET(-1)	-0.04407	-1.55232	0.1446
R-squared	0.882432			R-squared	0.676294		
Adjusted R-squared	0.719646			Adjusted R-squared	0.228086		
F-statistic	5.42081			F-statistic	1.508885		
Prob(F-statistic)	0.001712			Prob(F-statistic)	0.227448		
Durbin-Watson stat	1.955129			Durbin-Watson stat	1.70969		
Akaike info criterion	2.036558			Akaike info criterion	2.936749		
Schwarz criterion	2.906838			Schwarz criterion	3.80703		



### 5.4 Diagnostic Tests

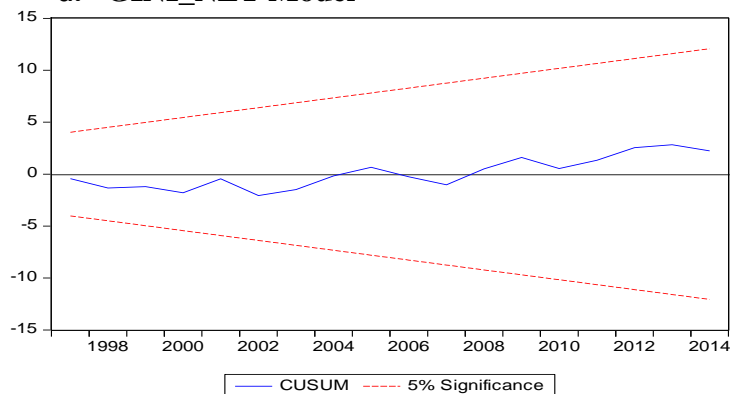
Diagnostic for the lag length selection criteria are presented in table 5.5 and figure 5.1. The LM test in table 5.5 suggest that there is no serial correlation for the Gini\_Net model since the Obs\* R-square is >0.05. The results for the Ginit\_Market model shows the presence of serial correlation since the Obs\* R-square is <0.05. The Gini\_Market model results are compensated for by the CUSUM and CUSUM of square at the 5% level which show that the models are stable (see figure 5.1 a-d). The stability of the models implies that inferences be drawn from them with certainty.

**Table 5.5: Diagnostics Test of Breusch-Godfrey Serial Correlation LM Test**

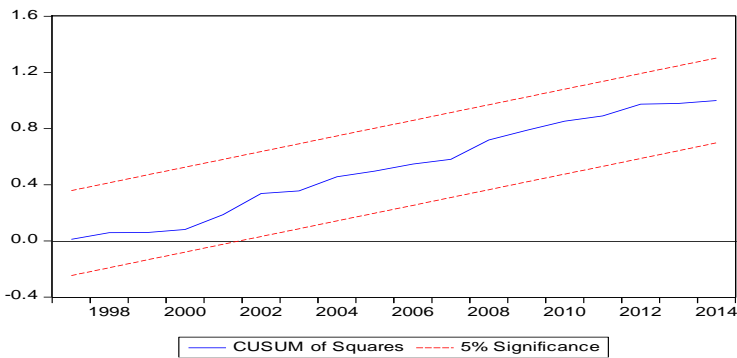
D(GINI_NET)				D (GINI_MAR-KET)		
<b>Breusch-Godfrey Serial Correlation LM Test</b>						
F-statistic	0.051004	Prob. F(2,11)	0.9505	4.539421	Prob. F(2,11)	0.0365
Obs*R-squared	0.294026	Prob. Chi-Square(2)	0.8633	14.46911	Prob. Chi-Square(2)	0.0007

**Figures 5.1: Diagnostic Test of the CUSUM and CUSUM of Square**

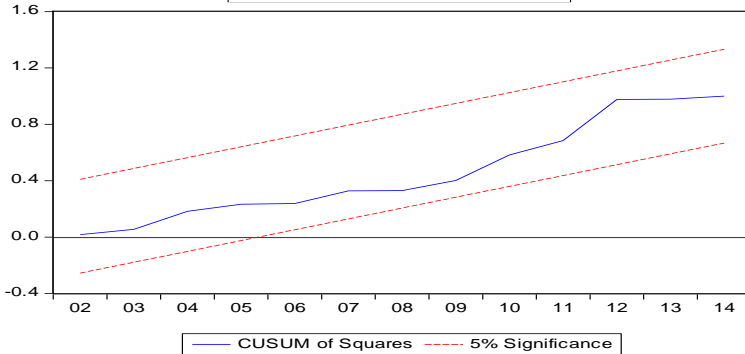
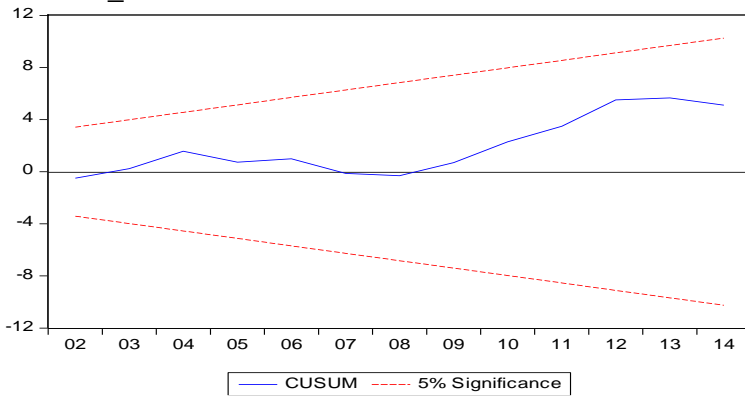
**a. GINI\_NET Model**



b.



**c. GINI\_MARKET Model**



**5.5 Bound Testing Results**

The bound testing requires testing whether the short-run coefficient are equal to zero or not. The results in table 5.6 show that the chi-square values are above the persaran upper bound critical value. The results implies that there is long-run relationships between Gini\_Net, PESCS, PEEDU, PEHT, PETF, and PET for model 1 and Gini\_Market, PESCS, PEEDU, PEHT, PETF, and PET for model 2. The results also proved that the error correction test can be conducted.

**Table 5.6: Bound Testing for the two Models**

D(GINI_NET)			D(GINI_MARKET)			
Bound Testing						
Test Statistic	Value	Df	Probability	Value	df	Probability
F-statistic	1.547359	(6, 13)	0.239	1.226068	(6, 13)	0.3541
Chi-square	9.284152	6	0.1582	7.356411	6	0.2891

### 5.6 Long Run Relations

The error correction terms are -0.08774 for model 1 and 0.13843 for model 2 respectively. The results implies that the system would be required to take a longer 8% and 13% for models 1 and 2 time to revert back to long-run equilibrium relationship when there is a change in the health expenditure. The result also implies that a lot of resource be pumped into the health sector if inclusive growth would be achieved.

Table 5.7: Correction Test Results for the Gini Net and Gini Market Models

D(GINI_NET)				D(GINI_MARKET)			
Variable	Coefficient	t-Statistic	Prob.	Variable	Coefficient	t-Statistic	Prob.
C	-0.02619	-0.17059	0.8664	C	-0.03355	-0.148742	0.8834
D(GINI_NET(-1))	0.885986	4.592516	0.0002	D(GINI_MARKET(-1))	0.491323	2.291399	0.0342
D(GINI_NET(-2))	-0.00168	-0.0089	0.993	D(GINI_MARKET(-2))	0.271972	1.202626	0.2447
D(PESCS(-1))	-0.00443	-0.49097	0.6294	D(PESCS(-1))	-0.00322	-0.235886	0.8162
D(PESCS(-2))	-0.01119	-1.22365	0.2369	D(PESCS(-2))	-0.01701	-1.240749	0.2306
D(PEEDU(-1))	0.010435	0.841743	0.411	D(PEEDU(-1))	0.00531	0.288844	0.776
D(PEEDU(-2))	0.007863	0.499921	0.6232	D(PEEDU(-2))	0.017025	0.719242	0.4812
D(PEHT(-1))	0.024702	1.927466	0.0699	D(PEHT(-1))	0.03627	1.900447	0.0735
D(PEHT(-2))	-0.00336	-0.25823	0.7992	D(PEHT(-2))	0.006823	0.34873	0.7313
D(PETF(-1))	0.003841	1.613078	0.1241	D(PETF(-1))	0.003085	0.848645	0.4072
D(PETF(-2))	-0.00179	-0.83138	0.4167	D(PETF(-2))	-0.00031	-0.096059	0.9245
D(PET(-1))	-0.00084	-0.47099	0.6433	D(PET(-1))	-0.0011	-0.410927	0.686
D(PET(-2))	0.000912	0.586965	0.5645	D(PET(-2))	0.000526	0.224124	0.8252
ECT(-1)	-0.08774	-1.9711	0.0643	ECT(-1)	-0.13843	-1.848556	0.081
R-squared	0.834247			R-squared	0.573991		
Adjusted R-squared	0.714536			Adjusted R-squared	0.266318		
F-statistic	6.96886			F-statistic	1.865586		
Prob(F-statistic)	0.000125			Prob(F-statistic)	0.109293		
Durbin-Watson stat	2.214559			Durbin-Watson stat	1.972446		

### 5.7 Diagnostic Test for the Error Correction model

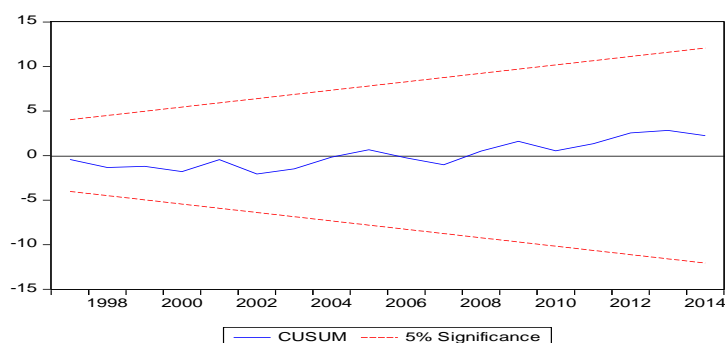
Diagnostic for the long-run relationships are presented in table 5.8 and figure 5.2. The LM test in table 5.8 for the two models suggest that there is no serial correlation for the Gini\_Net model and Gini\_Market since the Obs\* R-square is >0.05. The CUSUM and CUSUM of square at the 5% level which shows that the models are stable (see figure 5.1 a-d). The stability of the models implies that inferences be drawn from them with certainty.

**Table 5.8: Diagnostics Test for the Models Above**

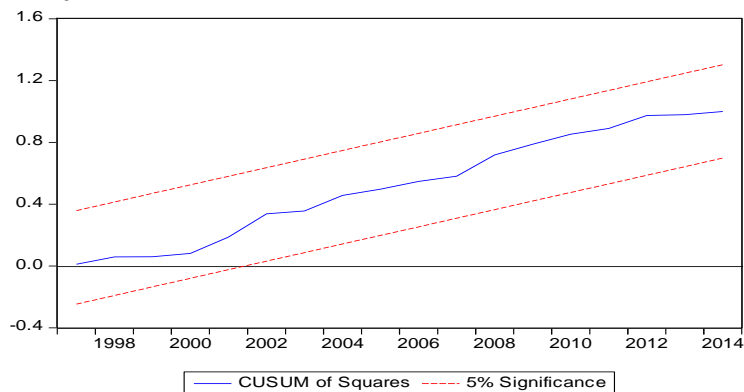
D(GINI_NET)				D (GINI_MAR KET)		
Breusch-Godfrey Serial Correlation LM Test						
F-statistic	0.654186	Prob. F(2,16)	0.5332	0.109139	Prob. F(2,16)	0.8973
Obs*R-squared	2.418938	Prob. Chi-Square(2)	0.2984	0.43068	Prob. Chi-Square(2)	0.8063

**Figure 5.2: Diagnostic Test for the Models Above**

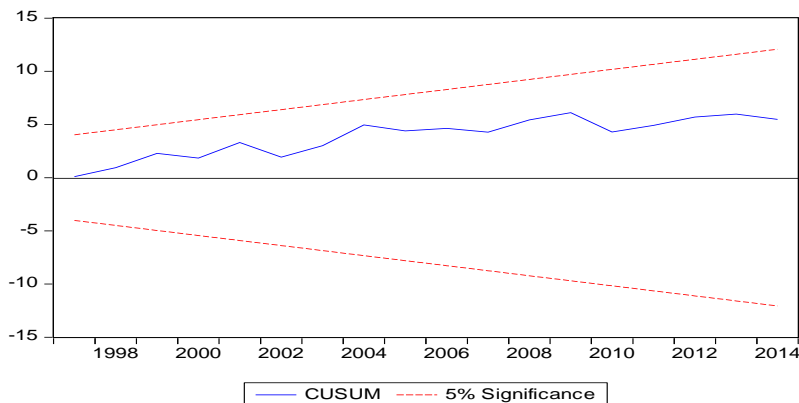
**a. D(GINI\_NET)**



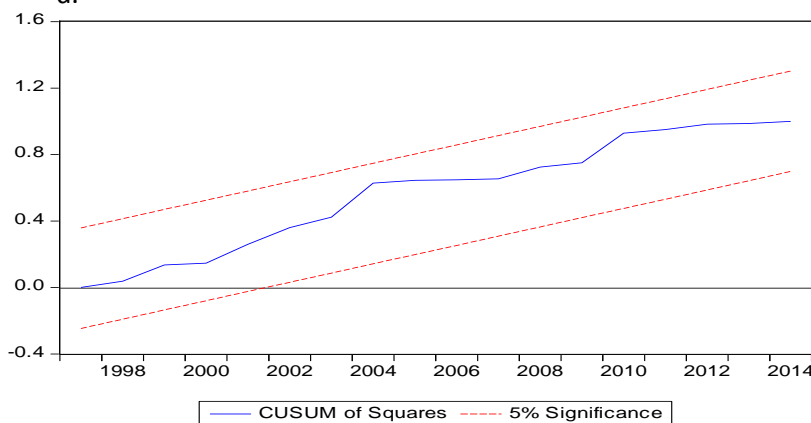
**b.**



**c. D(GINI\_MARKET)**



**d.**



**5.8 Short run Causality Analysis**

Short run causality can be inferred from the error correction results. Table 5.9 shows that causality runs from Gini\_Net-1 and Gini\_Net-2 to Gini\_Net. The results also show that causality runs from Gini\_Market-1 and Gini\_Market-2 to Gini\_Market. This is because the PV associated with the variables are  $<0.05$  (see table 5.9). This suggests that policies at supporting Gini\_Net and Gini\_Market can always be inferred from the past 2 to 1 years.

**Table 5.9: Short Run Causality Test Results**

D(GINI_NET)			D(GINI_MARKET)		
Variable	F. Value	Prob.	Variable	F. Value	Prob.
D(GINI_NET(-1))	31.1834	0	D(GINI_Maarket(-1))	6.252294	0.0087
D(GINI_NET(-2))	31.1834	0	D(GINI_Maarket (-2))	6.252294	0.0087
D(PESCS(-1))	1.133034	0.344	D(PESCS(-1))	0.954141	0.4038
D(PESCS(-2))	1.133034	0.344	D(PESCS(-2))	0.954141	0.4038
D(PEEDU(-1))	0.777355	0.4744	D(PEEDU(-1))	0.448223	0.6457
D(PEEDU(-2))	0.777355	0.4744	D(PEEDU(-2))	0.448223	0.6457
D(PEHT(-1))	2.526853	0.1078	D(PEHT(-1))	1.905173	0.1776
D(PEHT(-2))	2.526853	0.1078	D(PEHT(-2))	1.905173	0.1776
D(PETF(-1))	1.411862	0.2694	D(PETF(-1))	0.364691	0.6994
D(PETF(-2))	1.411862	0.2694	D(PETF(-2))	0.364691	0.6994
D(PET(-1))	0.315139	0.7336	D(PET(-1))	0.11854	0.8889
D(PET(-2))	0.315139	0.7336	D(PET(-2))	0.11854	0.8889

## 6.0 Summary, Conclusion and Policy Recommendation

The study examines the relationships between public health expenditure and inclusive growth in Nigeria. Public expenditure on health was used as a proxy for health expenditure while inequality was proxied by Gini\_Net and Gini\_Market. However, Gini\_Market was used as a robustness check. Preliminary stochastic properties of the time series data were carried out such as descriptive statistics, correlation and stationarity test. Econometric analysis were carried out such as lag length selection criteria, diagnostics test such serial correlation LM test and CUSUM and CUSUM of Square tests. The error correction test was also conducted and the causality inferred from it. The results show that the speed of adjustment for the Gini\_Net model was 8%, while for Gini\_Market was 13% and these speed of adjustment were considered to be very slow. The causality results show that the causality runs from Gini\_Net lag by 2 to 1 year to Gini\_Net and that it also runs from Gini\_Market lag by 2 to 1 year to Gini\_Market. The policy implication emanating from the results is that the Nigeria government should improve on it health expenditure on a large scale if inclusive growth from the point of view of health expenditure is to be realized.

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**Appendix Table 5: Data Set use for the estimation and descriptive statistics**

Year	gini_net	gini_market	PCGDP	PCGR	PESCS	PEEDU	PEHT	PETF	PET
1980	43.42275	46.17142	293200.6	1.265415	0.306167	0.171837	0.08773	3.595513	5.0345
1981	41.05843	45.27603	247876.9	-15.4583	0.294747	0.165427	0.084458	3.461391	4.8467
1982	41.28601	45.62048	238954.8	-3.5994	0.334841	0.187931	0.095946	3.932247	5.506
1983	42.44936	45.23219	221196.5	-7.43166	0.288914	0.162154	0.082786	3.392902	4.7508
1984	43.61271	44.84391	211302.8	-4.47282	0.354393	0.198904	0.101549	4.161854	5.8275
1985	44.77605	44.45562	223088.3	5.577556	0.46075	0.258597	0.132025	5.410874	7.5764
1986	46.00426	45.68439	198319.6	-11.1026	0.468078	0.26271	0.134124	5.496932	7.6969
1987	47.23247	46.91316	172402.7	-13.0683	0.297528	0.225005	0.041315	10.81094	15.6462
1988	48.46068	48.14193	180584.5	4.745727	2.1142	1.4588	0.4228	10.2962	19.4094
1989	49.68889	49.3707	187298.5	3.717933	4.2301	3.0118	0.5753	14.0746	25.9942
1990	50.9171	50.59947	205824.7	9.891245	3.396	2.4028	0.5007	24.6697	36.2196
1991	52.14531	51.82824	199405.9	-3.11857	2.6769	1.2563	0.6182	27.3094	38.2435
1992	53.37352	53.05701	195279.5	-2.06934	1.336146	0.291298	0.150161	39.93334	53.0341
1993	52.29272	52.30128	194427.8	-0.43616	14.65982	8.882378	3.871601	83.74725	136.7271
1994	51.21192	51.54556	191358.2	-1.57879	10.08542	7.382743	2.093984	55.44397	89.9749
1995	50.13112	50.78983	186069	-2.76403	13.8208	9.7464	3.3207	79.1332	127.6298
1996	49.05032	50.0341	190545.7	2.405969	15.98918	11.49615	3.023707	57.20187	124.4913
1997	48.59484	51.58423	191055.2	0.267352	22.06013	14.85354	3.891099	74.11863	158.5635
1998	47.36118	50.50647	191397.7	0.179287	21.44143	13.58949	4.742267	94.40287	178.0978
1999	46.12752	49.4287	187546.1	-2.01237	71.3712	43.61065	16.63877	107.5772	449.6624
2000	44.89386	48.35094	192616.4	2.703505	84.78505	57.95664	15.21808	203.6929	461.6
2001	43.6602	47.27317	196104.4	1.810865	79.63041	39.8826	24.52227	265.8602	579.3
2002	42.42653	46.1954	198437.8	1.189879	152.1854	80.53088	40.62142	225.1534	696.8
2003	41.19287	45.11764	213475.7	7.57813	102.6076	64.78215	33.26798	477.6484	984.3
2004	40.65027	44.41287	278249	30.34224	134.3907	76.52765	34.19848	610.7037	1110.644
2005	41.26552	45.08585	280457.1	0.793569	151.6466	82.79711	55.663	670.6031	1321.23
2006	41.88077	45.75882	295636.1	5.412249	194.1691	119.018	62.25362	594.0475	1390.102
2007	42.49602	46.43179	307593.6	4.04467	256.6738	150.7793	81.90937	527.1655	1589.27
2008	43.11127	47.10476	318307.7	3.483205	332.926	163.9775	98.21932	739.662	2117.362
2009	43.72652	47.77774	331407.7	4.115486	354.186	137.116	90.2	635.75	2127.966
2010	42.29104	46.19308	347934.4	4.986829	550.9	170.8	99.1	878.34	3109.437
2011	40.85556	44.60842	355255	2.104025	785.4361	335.8	231.8	956.1772	3314.436
2012	42.29104	46.19308	360615.2	1.508833	790.0565	348.4	197.9	1145.6	3325.157
2013	41.81255	45.66486	370004.2	2.603613	844.0674	390.4248	179.9869	1441.955	3689.08
2014	41.65305	45.4887867	383023.4	3.518654	615.3448	311.1192	194.9648	834.6238	2530.344

## AN ASSESSMENT OF THE IMPACT OF SOKOTO POVERTY REDUCTION AGENCY (SPORA) ON THE BENEFICIARIES

Abdulwasiu Salihu,  
 Globacom Nigeria Limited, Sokoto  
[abdulwaseeu@yahoo.com](mailto:abdulwaseeu@yahoo.com)/[abdulwasiu.salihu@gloworld.com](mailto:abdulwasiu.salihu@gloworld.com)  
 08055575317/08073603328

Dr. Ibrahim Hussain Aliero  
 Department of Economics,  
 Usmanu Danfodiyo University, Sokoto  
[ialiero2003@yahoo.com](mailto:ialiero2003@yahoo.com)  
 08072281667

Prof. Yahya Zakari Abdullahi  
 Department of Economics,  
 Usmanu Danfodiyo University, Sokoto  
 07031538760

### ABSTRACT

This study assesses the impact of Sokoto Poverty Reduction Agency (SPORA) on the beneficiaries. It specifically analyzes the impact of the programme on income, consumption expenditure and assets ownership of the beneficiaries. A sample of 360 was selected using availability sampling technique. A structured questionnaire was administered to the respondents out of 360 questionnaires distributed 320 were found to be useful. Descriptive and inferential statistics (Logistic regression analysis and paired t-test) were used to analyze the data. The study reveals that there is a significant different in income level, consumption expenditure and assets ownership of the beneficiaries before and after benefiting from the programme. It was also found that age has significant positive relationship with poverty level of respondents while occupation and level of Education have significant negative relationship with poverty level of the beneficiaries. The study thus suggests that the SPORA programme should be sustained and be expanded in its operation to accommodate more beneficiaries.

### Introduction

Poverty has been a major problem retarding socio economic development of the third world countries and other parts of the world. Over the years, the issue of poverty alleviation has been accorded great concern at both the national and international levels, due to the great danger it poses to both human and societal development. At different circle of human history, series of policies, strategies and schemes regarding poverty alleviation had been put in place (Uma et.al, 2013). In fact, the International Labour Organization (ILO) has since 1994 brought the issue of poverty alleviation to the forefront of its agenda and identifies that “poverty

anywhere is a great hindrances to prosperity everywhere” (Oladeji and Abiola, 1998), as such, poverty eradication has become a key factor in the realization of Millennium Development Goals (MDGs) by year 2015, as well as vision 20:2020 in Nigeria.

Data from the Federal Office of Statistics on poverty profile in Nigeria showed that the incidence of poverty increased drastically from 28.1% in 1980 to 43.6% in 1985 and rose to 65.6% in 1996. However, since 1990 the country has been classified as a poor nation. The UNDP Human Development Index (HDI) for 2000 ranked Nigeria as the 142<sup>nd</sup> with HDI of 0.40 among the poorest countries. Nevertheless, for the period 1980 to 1996, the population of poor Nigerians increased fourfold in absolute term (Oyesanmi et.al, 2006).

Recent report by National Bureau of Statistics (NBS, 2012) shows that annual socio-economic survey of 2011, estimate that poverty rise to about 71.5 percent, 61.9 percent and 62.8 percent using relative, absolute and dollar per day measurements respectively. The report also shows that, North-West and North-East geo-political zones in Nigeria had the highest poor, the south-west recorded the lowest with 59 percent, Whereas, Sokoto state top the list of poor states with 86.4 percent.

Federal government policy initiative on poverty alleviation, prompt many state governments to launch poverty eradication programmes at state level as part of the effort to eradicate poverty in Nigeria. The idea of eradicating poverty at state level, prompt Sokoto State government to launch Sokoto Poverty Reduction Agency (SPORA) in 2001, with the aim of reducing level of poverty by providing employment opportunities, loans for small-scale businesspersons and farmers, empowerment through provision of busses, motorcycles for commercial purposes. (Muhammad, 2012) analyses the impact of SPORA on youth empowerment in Sokoto metropolis, however, it appears that this is the only study that assesses the programme and it covers only one scheme of the programme. This study tends to cover all the schemes of the SPORA. It assesses the impact of Sokoto poverty Reduction Agency (SPORA) on beneficiaries with particular reference to Sokoto South and North Local Government Areas. Specifically it intends to analyze the impact of the programme on the income, consumption expenditure and assets of the beneficiaries. To this, effect two hypotheses were tested. The first hypothesis says there is no significant relationship between the socioeconomic characteristics of the respondents and their poverty level and the second says there is no significant difference in the income, consumption expenditure and assets of the beneficiaries before and after SPORA. This research is important in the sense that it may provide feedback to the policy makers on the programme and what could be done to improve the programme. The findings of this study may increase the understanding of the efficacy of such poverty eradication programmes.

This study is structured into five sections. Section one is this introduction, section two reviews the literature, section three is the research methodology, section four presents, analyzes and discusses the results of the study and section five concludes the paper.

## Literature review

### Conceptual Framework

There is no universal acceptable definition of poverty, and there is always the difficulties in deciding where to draw the line between the poor and the non-poor, poverty is a multifaceted concept being perceived by different people while using different criteria to assign a meaning to it, and therefore, this makes it difficult to give a concise meaning to the term (Kurfi, 2009).

These varied definitions can be grouped into different categories, such as in terms of income, consumption/expenditure, deprivation, opportunities denial, lack of basic needs, assess to social and physical infrastructures. Poverty also connotes many things such as: lack of materials well-being, insecurity, low self confidence, psychologically distress, lack of freedom of choice and action and inability to believe in one self. (Narayan, 2000). According to (Aluko, 1975), (Ravallion and Bidani, 1994) poverty refers to lack of command over basic consumption needs, which means in other words, that there is an inadequate level of consumption given rise to insufficient food, clothing and shelter, and also the lack of certain capacities, such as being able to participate with dignity in society.

Poverty is also of various degrees and types; it can be chronic or transitory, depending on how long poverty is experienced by an individual or a community. Chronic poverty is long term and persistent and the causes are largely structural and endemic, while transitory poverty is temporary, transient and a short term in nature (Okumadewa, 2001). MDGs (2004) also identified absolute and relative poverty; absolute poverty is the situation of lack of access to resources needed to obtain the minimum necessities required to maintain physical efficiency. (UNDP, 2000) asserts that, absolute poverty is income per person too low to afford 2,250 calories per day and thus at risk of poverty malnutrition, and defined as less than 75 cents a day income. While relative poverty is the inability to maintain a given minimum contemporary standard of living, one is adjudged poor relative to the other. This can be measured by determining an average income for a nation or region's average and compare to another.

Other types of poverty includes human poverty is lack of basic human capabilities such as illiteracy, malnutrition, abbreviation of life span, poor maternal health and illness from preventable diseases. Spatial/location poverty, depending on geographical or regional spread and incidence. In Nigeria, poverty is a rural phenomenon, where the majority of Nigerian populace earned their living. Livelihoods in the rural areas of Nigeria are agro-based with poor access to livelihoods assets.

The degree of poverty can be differentiated on the basis of core needs that are yet to be satisfied. The (UNDP, 1998) identified five hierarchy orders starting with the most basic physiological input, which is food, then shelter, housing and potable water and followed by basic health care and sanitary facilities. This research uses poverty definition that alluded to income.



## Empirical Review

Series of studies have been carried out on the impact of poverty alleviation/reduction programmes/policies/agencies in the society, using different methods of analysis and the outcome have been the mixed one (positive and negative) outcome. It is therefore pertinent at this juncture to review some of the findings of these studies.

(Imran,2009) study poverty alleviation in Southern Punjab (Pakistan), with emphasis on empirical evidence from the project Area of Asian Development Bank. Logistic regression analysis was used and data was sourced through administration of questionnaire on 120 households selected through simple random sampling in the study area. The study reveals that, rural poverty can be alleviated by lowering the household size, persons per room and dependency ratio, improving education, more female labor force participation, higher household participation rate(employment rate), improving assets and household's access to market and suggest that government should pay special attention to basic infrastructure and market access facilities among other factors.

(Barnabas and Kim, 2014) examine the contribution of vulnerable Group's sub-projects under Tanzania social action fund to income poverty reduction in Bahi District, Tanzania. This study was conducted in Bahi District of Tanzania to determine Tanzania Social Action Fund (TASAF) beneficiaries' income and impact of monetary values of support from TASAF on beneficiaries' households' income. Data was sources through administered questionnaire and interview, the study also adopted a cross-sectional research design to determined sample size. Data were analyzed using both descriptive statistics like frequencies, means and percentage and inferential statistics independent and paired t-test, furthermore, multiple linear regressions was used to determine the impact of monetary values of support from TASAF on household income.

The study findings shows, net income and expenditure between the beneficiaries of TASAF programme and non-beneficiaries this was determined by using independent sample t-test. The result shows net income of TASAF beneficiaries to be TZS1,140,000 and that of non-beneficiaries is TZS 3,680,000, by this result means that net income per capita for non-TASAF beneficiaries was more three times than among TASAF beneficiaries. This means that TASAF beneficiaries were most vulnerable and prone to income poverty compared to non-TASAF beneficiaries. In the same vein, the total expenditure per capital of non TASAF beneficiaries was TZS 3,550,000 greater than that of TASAF beneficiaries which was TZS 2,000,000.

However, net income and expenditure before and after TASAF intervention of the beneficiaries was also examined. Paired-sample t-test was used. The findings shows that net income per capita for TASAF beneficiaries before TASAF intervention was TSZ 799,000 while after TASAF intervention it was TZS 1,140,000. These results reflect that TASAF beneficiaries improved in income at the household level after intervention. In the same vein, the total expenditure per capita per year for TASAF beneficiaries before TASAF intervention

was TZS, 1,890,000 while after TASAF intervention is was TZS 1,930,000 these results reflect that TASAF beneficiaries increased their expenditure level due to improvement of income status.

(Shawulu *et al.*, 2008) appraises the National Poverty Eradication Programme (NAPEP) in Jalingo Local Government Area of Taraba State. Data was generated using questionnaire administration and student t-test was used for the analysis. The study was based on two objectives: to examine income of beneficiaries before and after the programme and to compare income of beneficiaries and non- beneficiaries.

The study reveals that, there was a strong relationship between the income of beneficiaries before and after enrolment, because the mean monthly income of beneficiaries stood at #3259 and #8790 for CAP(Capacity Acquisition Programme) and MAP(Mandatory Attachment Programme) respectively before the programme, but increase to #4126 and #17010 after the programme for non –educated beneficiaries, and #8790 and #17010 for educated beneficiaries of both CAP and MAP programmes respectively. However, the study also show the mean monthly income of all beneficiaries after NAPEP intervention stood at #9295 with a mean daily income of #309.83 which is above the poverty line in the study area. However, the non-benefitting respondents have a mean monthly income of #6116 and mean daily income of #203.87, this value of the mean daily income of non- beneficiaries is quite above the poverty line in the study area. Although, this generalize value for non-benefitting respondents may not be the true for all the non-beneficiaries in the study area.

(Rufai *et al.*, 2012), studied the impact of IFAD poverty intervention programme on rural poverty reduction in selected LGAs of Sokoto State. Logit regression model was used as a method of analysis and multi-stage sampling techniques was used to select 210 respondents and the data was collected through administration of questionnaire. However, dependent variable is probability of being poor or not, while independent variables comprises of educational level, gender, age, assets ownership, household size, regional of residence, access to market and increase capital expenditure. The main findings of the study are that, educational level has negative relationship with rural poverty. The study also shows that the relationship between gender and rural poverty is positively insignificant. This means that male headed households have higher per-capital incomes and participate more in economic activities than female. Asset ownership as reveals by the study is positive but has insignificant effect on rural household poverty, this mean that the more an individual own assets does not necessarily mean his is non-poor, because assets owned may not be productive assets. However, in the case of household size, the study reveal positive relationship between household size and poverty, it is also reveal that positive and significant relationship exist between geographical location and poverty. It was also reveal that, individuals age between 40-60 years participate more in the programme.

(Etim and Edet 2014) examine whether or not asset ownership reduce chronic poverty, multi stage sampling technique was used to draw 150 respondents and primary data were obtained from 150 households with the aid of questionnaire. Foster Greer Thorbecke (FGT) weighted poverty index and stochastic dominance Analyses Were employed. Result of the findings



shows that poverty incidence, depth and severity was lower for households who own certain assets as land, houses, cars motorcycles and sewing machines.

(Agba et al.. 2014) study micro finance credit scheme and poverty reduction among low income workers in Nigeria. Structure questionnaires was used to obtained data from respondents and Pearson product moment correlation was used for analyses. The findings of the study shows that micro finance credit scheme increase low- incomes workers access to credit facilities and promote their engagement in small and medium enterprises as well as enhance their ability to savings.

(Bature et al.. 2013), Analyses the impact of National Fadama Development Projects on Beneficiaries' income and wealth in FCT, Nigeria. The findings of this study shows that productive assets of Fadama beneficiaries increase after benefitting from the programme, while there was a decrease in the net farm income of Fadama beneficiaries, though, these fall in the income of farmer was said to be connected to the acquisition of productive asset and it was expected to be in the short term, income is however expected to rise within shortest time, due to the acquisition of assets by the farmers.

(Ibitoye and Odiba, 2015), Analyses the impact of Community Based Poverty Reduction Project on Farming Communities in Kogi State, Nigeria. A multi stage random sampling technique was used to select 180 respondents. Descriptive statistic, FGT model and multiple regression models were used to analysis data. The findings shows that a number of factors affect the poverty level of farmers, which include age, gender, secondary occupation, storage facilities, electricity, household income, farming experience and educational level and of course the influence may be positive or negative to the level of poverty.

(Oluyole 2012) studied the impact of micro credit projects on poverty Alleviation: A case of farming Households in Ijebu Ode Local Government Area of Ogun State, Nigeria. The study focus on the evaluation of community development as a result of the introduction of some micro credit projects. The findings of the study show that, the mean income of the respondents after the projects. It was below 150,000 before micro credit project and rise to above 150,000 after the project. Likewise household expenditure increase from the first expenditure deciles to the tenth deciles-it was 845.14 per month for the first deciles and 8413.17 for the tenth deciles per month.

(Spaho 2014) Examine the Determinants of Poverty in Albania, Log-linear model and Logistic model were used in the analyses, some of the findings shows that age, gender of the household head and resident are negatively related to poverty, age and gender head are insignificant while residence is significant. Educational level of the head of household, employment status of the household head and household size are positively related to poverty, while household head and employment status of household head were significant but educational level of household head is insignificant.

In conclusion, considering the incidence and severity of poverty in our society, government at various levels need to intensify their effort towards increasing income level of citizenry by provide job opportunity, as well as provide enabling environment for private sector economy.

## **Methodology**

### **The Study Area**

Sokoto North and South are part of Sokoto metropolis in the capital city of Sokoto State, according to population census (2006) the population of the areas is 232,846 and 194,914 for Sokoto North and South respectively with annual growth rate of 3.2%. (NPC, 2012). The population cuts across different tribes and ethnicity who are predominantly Hausa/Fulani. The economic activities of the people include farming, trading, fishing, local craft such as blacksmithing, weaving, dyeing, carving and leatherwork etc.

The incidence of poverty in Sokoto state shows that, the level of poverty was at 25.4% in 1980, it rose to 45.8% in 1985, in 1992, the poverty level fell to 37.9% and it drastically increases to 83.6% in 1996, it increases to 86.4% in 2010 and slightly fell to 81.2% in 2012. This poverty profile for Sokoto state shows that there was 319.7% rise in the poverty level of the state between 1980 and 2012. (FOS, 1999), (NBS, 2013).

### **Data Collection**

In this study, primary source of data was used, which was sourced through administered questionnaire to the sampled beneficiaries. The questionnaire contains questions on income, consumption expenditure, assets and other demographic variables. A closed-ended questionnaire was adopted, which contains a list of specific questions with multiple answers, to restrict the responses within the purview of the study.

### **Sample and Sampling Technique**

The population of the beneficiaries from 2001 to date for the Sokoto south and north is 3572. A sample size of 360 was selected using availability sapling method. This was due to the difficulty in accessing the respondent through their addresses. The questionnaire was administered to the respondents as they visit the SPORA Office

### **Variable used in the study**

The variables of interest in this study are: Poverty reduction, income, consumption/expenditure and asset ownership of the respondents. The dependent variable is poverty reduction while income, consumption expenditure and assets are the independent variables. It is expected that there should be reduction in poverty level if income, consumption expenditure and asset of the beneficiaries increase.

**Model Specification** Logistic regression model as adopted by (Imran et al 2009), (Zahoor and Ayesha 2011) was used to determine the relationship between poverty level and socio economic variables in this study. The model is specified as follows:

$$P = \beta_0 + \beta_1 \text{ AGE} + \beta_2 \text{ SEX} + \beta_3 \text{ MAR} + \beta_4 \text{ OCC} + \beta_5 \text{ SHH} + \beta_6 \text{ EDU} + \mu \quad (1)$$

Where:

P = Poverty level

$\beta_0$  = Constant

AGE = Age of the respondents

SEX = Sex of the respondents

MAR = Marital Status of the respondents

OCC = Major occupation of the respondents

SHH = Sex of the Household Head

EDU = Educational attainment of the respondents

$\mu$  = Error term

### Variable Measurement

The variables of interest in this study are: Poverty reduction, income, consumption expenditure and asset ownership of the respondents. The dependent variable is poverty reduction while income, consumption expenditure and assets are the independent variables. It is expected that there should be reduction in poverty level if income, consumption expenditure and asset of the beneficiaries increase.

Income in this context was measured in terms of the amount of money in Naira value realized by the beneficiaries through the activities of the SPORA. Consumption expenditure, this was measured by the amount of money in Naira value spend on food items and non-food items. Assets ownership was measured in term of monetary value (in Naira) of savings in banks and production assets acquired by the beneficiaries within the study period.

However, in the above model specified, the dependent variable is poverty status of respondents and it is measure as a dummy, which is 0 if poor and 1 for non-poor. While independent variables include: age of respondents is measure in years, sex of respondents is measure as a dummy and it is coded as 1 for male and 2 for female, marital status is measure as a dummy and coded as 1 for single, 2 for married, 3 for divorced and 4 for windowed, major occupation of respondents is also a dummy variable, coded as 1 for civil servants, 2 for petty trading, 3 for farming and 4 for commercial transportation, sex of household head, is coded as 1 for male and 2 female, level of education is coded as 1 for non formal education, 2 for primary education, 3 for secondary education, 4 for post secondary education 5 for graduate. In the above relationships, the probability of an event occurring is a function of a set of non-stochastic explanatory variables and a vector of unknown parameter.

## Data Analysis

Data obtained from the field was presented and analyzed using descriptive and inferential statistics. The descriptive statistics use frequency tables and percentages. Logistic regression model was employed to establish the relationship between SPORA beneficiaries' poverty level and their various socio economics characteristics. The paired t-test was also employed to test if there is difference in income, consumption expenditure and asset ownership of the beneficiaries before and after benefiting from the programme.

## Results and Discussion

This section analyzes and discusses the results of the study. It is divided into descriptive and inferential analyses. Tables and percentages were used in the descriptive analysis, while logistic regression model and paired t – test were used in the inferential analysis. The statistical package for the social sciences (SPSS) version was used in the analysis.

### Descriptive Analysis

The descriptive analysis describes the characteristics of the respondents. Table 1 describes the socio economic characteristics of the respondents.

**Table 1: Socio-Economic Characteristics of Respondents**

Variable	Class	Frequency	%
Age	20-30	156	48.8
	31-40	115	35.9
	41-50	39	12.2
	51-60	10	3.1
Gender	Male	238	74.4
	Female		
Marital status	Single	131	40.9
	Married	167	52.2
	Divorced	16	5.0
	Widowed	6	1.9
Educational status	Non-formal	57	17.8
	Primary	72	22.5
	Secondary	120	37.5
	Diploma/NCE	62	19.4
	Graduate	9	2.8
Sex of the household head	Male	281	87.7
	Female	39	13.3
<b>Variable</b>	<b>Class</b>	<b>Frequency</b>	<b>%</b>
Major occupation of the respondents	Civil servant	77	24.1
	Petty trading	116	36.2
	Farming	45	14.1

	Commercial transportation	82	25.6
Scheme engaged by beneficiaries	Youth skill acquisition scheme	124	38.8
	Agricultural empowerment programme	47	14.7
	Transportation empowerment scheme	75	23.4
	Trade/corporative empowerment scheme	33	10.3
	Micro credit delivery scheme	41	12.8

Source: Field Survey, 2014

The table 1 shows that the majority of respondents fell between 20-50 years, which constitutes 97%, it shows that the majority of the respondents are middle aged people, which mean they are on the average at their economically active age. The study also reveals that majority of respondents were functionally literate as the study reveals that only about 18% of the respondents had no formal education while 82% had formal education, though at various level. However, the study also reveals that about 52% of respondents were married, 40.9% were single while 5% and 1.9% of the beneficiaries are divorce and widowed respectively. This confirmed the tradition of the study area that married early. Gender analysis of the respondents shows that the male are dominant in the programme with 74.4%, in the same vein the sex of the households heads are also dominated by male of about 87.7%. This male dominance in both the gender and head of the household head shows that mostly men have the responsibility of providing the means of livelihood for their family, and movement of women is restricted.

The table also shows that majority of beneficiaries engaged in petty trading and only few of them are farmers, farming had low percentage because of the fact that, the study area is an urban area and the farming is not common among the youth. Furthermore, the table also reveals that beneficiaries benefited mostly from the Youth Skill Acquisition Scheme of the programme with 38.8%. However, the fact that youth skill acquisition scheme has the majority of beneficiaries shows that, it is in line with one of the objectives of the programme, of providing gainful employment opportunity to the teeming youth.

The study also examines the perception of the beneficiaries about the SPORA programme. The finding is shown in table 2.

**Table 2: Perception of Respondents on SPORA**

Variable	Class	Frequency	%
Employment benefit of the programme	Yes	317	99.1
	No	3	.9
Satisfaction with activities of SPORA	Very satisfied	185	57.8
	Satisfied	129	40.3
	Neither satisfied nor-dissatisfied	3	.9
	Dissatisfied	3	.9

Source: Field Survey, 2014

From table 2, respondents general perception on the programme indicate that 99.1% of respondents are of the view that the programme provides gainful employment to the beneficiaries while only 3 respondents (less than 1%) viewed otherwise. This shows that the majority of respondents really benefited from the programme.

The table also shows the extent of satisfaction of the respondents with the programme of SPORA. From the table

Then, on the issue whether or not the respondents satisfy with the activities of the SPORA, 57.8% strongly satisfied with the activities of SPORA, while 40.3% satisfied with SPORA activities and .9% of the respondents neither satisfied nor dissatisfied with the activities of the SPORA and finally only 0.9% did not satisfied with SPORA activities. This implied that majority of the respondent about 98.2% are satisfied with the activities of SPORA.

### Inferential Analysis

Table 3 presents the logistic regression result. It tests the relationship between socio economic variables and poverty level.

Table 3: Logistic Regression Result on the relationship between Socio Economic Characteristics and Poverty Level

Variables	Coefficients	Significant
Age	0.76	0.033*
Sex	-.441	0.438
Marital status	-.151	0.664
Major occupation	-.778	0.007*
Level of education	-.456	0.041*
Sex of household head	-.068	0.928
Constant	-1.991	0.224
$R^2$	0.57	
Chi <sup>2</sup>	18.78	
Number of observation	320	

Significant at 5% (\*)

Source: Field Survey, 2014.

The coefficient of  $R^2$  is 0.57, indicating that approximately 57% of the variation in poverty level of the respondents is explained by their socio-economic characteristics while 43% of the variation in their poverty level is explained by some variable not captured in the model.

Table 4 presents the paired t – test result. It tests the hypothesis that says there is no significant difference in the income, consumption expenditure and assets of the beneficiaries before and after benefiting from SOPRA.

**Table 4: Paired t-test result**

Value compared	N	Means	t-value	Sig (p-value)
Net income among SPORA beneficiaries before benefiting from SPORA programme	320	222.41	13.618	.000
Net income among SPORA beneficiaries after benefiting from SPORA programme	320	1017.48		
Total consumption expenditure among SPORA beneficiaries before benefiting from SPORA programme	319	328.18	4.352	.00
Total consumption] expenditure among SPORA beneficiaries after benefiting from SPORA programme	319	545.24		
Total asset owned by beneficiary of SPORA before benefiting from SPORA programme	320	13,939.06	9.756	.000
Total asset owned by beneficiary of SPORA after benefiting from SPORA programme	320	152,170.31		

Source: Field Survey, 2014

Table 4 shows the result of paired t-test. From the table it is clear that mean income, consumption expenditure and asset ownership of the beneficiaries before SPORA intervention stood at 222.41, 328.18 and 13939.06 respectively. However after benefiting from SPORA programme, their mean income, consumption expenditure and asset ownership rose to 1017.48, 545.24 and 152170.31 respectively. This shows that there is a significant difference in income, consumption expenditure and asset ownership of the beneficiaries before and after benefiting from SPORA programme, the result is significant at the 95% confidence interval.

### Discussion of Findings

Table 3 shows the logistic regression result. From the table it could be observed that age of respondents has a significant and positive relationship with poverty level in the study area. This indicate that as people attained old age, their involvement in economic activities decline, this findings coincides with that of (Imran et al.. 2009) and (Rufai et al.. 2012) who observed that increase in age of an individual will aggravate the probability of being poor. On the other hand, sex of the respondents has a negative but insignificant effect on their likelihood of being poor or not, this finding concurred with the finding of (Spaho 2014) who observed that there is insignificant negative relationship between gender and likelihood of being poor.



Marital status of the respondents has an insignificant negative relationship effect on the status of their poverty. This coincides with the study of (Ibitoye and Odiba 2015) who observed that the negative relationship of marital status to poverty level implies that the household heads that were married had low poverty level. Major occupation of the respondents has a significant negative relationship with poverty level. It therefore shows that, being engaged in one economic activity or the others reduce the chance or likelihood of being poor. This study concurred with the study of (Ibitoye and Odiba, 2015) who observed that negative relationship of occupation and poverty implies that the household engaged in secondary occupation aside farming have low level of poverty.

Level of education has a significant negative relationship with poverty level of respondents, this means that the higher the level of education or educational attainment the lower the likelihood of being poor. This coincides with the work of (Imran et al., 2009) and (Rufai et al., 2012).

Sex of household head has an insignificant negative relationship with poverty level, this finding is in line with the work of (Spaho 2015) who observed that sex of household heads has a negative relationship with poverty level, this shows that there is likelihood for a family to be non-poor if the head of household is male.

The findings of the study as shown in table 4 indicates that paired t-test result on income of the beneficiaries before and after the scheme reveals that there was a significance difference in the income level of respondents before and after the scheme. This study finding is also supported by the work of (Shawulu *et al.*, 2008) that study the impact of microfinance on poverty alleviation in Nigeria, and find out that there is a significant effect of micro finance institution in alleviating poverty by increasing income and changing economic status of those who patronize them.

(Oluyole, 2012) also supported the increase in income of the beneficiaries, he examine the impact of micro-credit projects on poverty alleviation in Ijebu-Ode local government of Ogun State and finds out that the annual income of the beneficiaries before the micro-credit project was below ₦150,000 while it was above ₦150,000 after micro credit project. (Agba *et al.*, 2014) also asserted in their work on micro finance credit scheme and poverty reduction among low-income workers in Nigeria; the finding of the study shows that micro finance credit scheme increases low income workers access to credit facilities and promote their engagement in small and medium enterprises as well as enhances their ability for saving. This study finding is in accord with the work of (Barnabas and Kim 2014) that examine the impact of Tanzania Social Action Fund (TASAF) on income of the beneficiaries in Bahi district of Tanzania, it was found that the net income per capital for TASAF beneficiaries before benefitting from the programme was TZS 799,000 which increase to TZS, 1,140,000 after benefitting from the programme. But this finding disagreed with the work of (Bature *et al.*, 2013) that evaluate the impact of Fadama III project on income and wealth of the beneficiaries' farmers in FCT. It was find out that the value of productive assets of Fadama beneficiaries increase after the project, but there was a decrease in the net farm income of



Fadama beneficiaries, however, this findings by (Bature *et al.*, 2013) was said to be in the short run, and the income of beneficiaries is expected to increase in the long run, considering the acquisition of productive assets by the beneficiaries.

Table 4 also shows paired t-test result on the consumption expenditure of the beneficiaries before and after the scheme and reveals that there was a significant difference in the consumption level of respondent beneficiaries of SPORA before and after the scheme. This finding is in line with the work of (Oluyole 2012) that examine the impact of micro-credit projects on poverty alleviation in Ijebu-Ode, of Ogun State, find that the per adult equivalent household expenditure increase from the first expenditure deciles to the tenth deciles, it was 845.14 per month for the first deciles and 8413.17 for the tenth deciles per month. This study was also in line with the study of (Barnabas and Kim 2014), that examine the impact of Tanzania Social Action Fund to income poverty reduction in Bahi district of Tanzania, the findings shows that the total expenditure per capita per year for TASAF beneficiaries before TASAF intervention was TZS 1,890,000 while after TASAF intervention was TZS 1,930,000, this shows that TASAF beneficiaries expenditure increases after benefitting from the programme.

Table 4 also shows paired t-test on the assets owned by the beneficiaries before and after benefitting from the scheme and reveals that there was significant difference in the asset ownership of the respondents before and after the scheme. This agreed with the work of Bature *et al.* (2013) find out that beneficiaries productive assets increase after benefitting from the project (Fadama III project in FCT). The result of the study as indicated in the table 4 also accord with (Etim and Edet, 2014) that examine whether assets ownership reduce chronic poverty or not, and find out the poverty incidence, depth and severity was lower for household who own certain assets as land, houses, car, motor cycles and sewing machines compare to those household that have less or no assets.

## Conclusion

The findings of the study show that there was significant difference between the means of income, consumption expenditure and asset owned by beneficiaries before and after benefitting from the scheme. This shows that the SPORA programme had actually helped the beneficiaries to improve their income, consumption expenditure and assets ownership which reduces their poverty. However, youth participation in the programme is encouraging but that of women participation is of great concern being among the vulnerable in the society, there is, therefore need to encourage women participation not only in this kind of programme but other developmental programmes.

## Recommendation

Based on the findings of the research the following recommendations are offered:

- i. Sustainability of the programme: It is strongly recommended that the programme should be continued, because the huge success and positive impact of the programme to the beneficiaries, its continuity will reduce the poverty level of the state in the nearest future.
- ii. The programme should expand its operation so as to accommodate more people as its beneficiaries, by establishing more training and vocational centers across the state.
- iii. The programme should be strategized to be geared towards involving more women in the programme by making the programme to be more women friendly and make policies and strategies on how to train women even in their matrimonial homes.

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## OIL PRICE SHOCK AND THE DYNAMICS OF STOCK MARKET INDEX IN NIGERIA

Ibrahim, Kekere Sule  
Department of Economics,  
Ahmadu Bello University, Zaria  
[Ibroks301@gmail.com](mailto:Ibroks301@gmail.com)

MOHAMMED, Shaibu Jibril (PhD)  
Department of Economics,  
Ahmadu Bello University, Zaria  
[jibrilshm@gmail.com](mailto:jibrilshm@gmail.com)

### ABSTRACT

*This paper examined the effects of oil price shocks on Nigerian stock market using Kilian and Park (2009) model of structural VAR (SVAR) and monthly data for the 1994M1-2015M12. The variables included in the model are Kilian index, global oil supply, real oil price, real stock market index and global economic activities. Impulse response function (IRF) and variance decomposition (VD) were used to investigate the response of stock market to oil price shocks and to measure the effects of oil price shocks on variations in stock market respectively. The results of IRFs oil supply shock and global economic activities (demand shock) have significant effects on stock market. The effects of oil price shocks persisted for the first six months after which the effect petered out. Variance decomposition of real stock market index indicates that "stock-specific shock" is the most important explainer of variation in Nigeria stock market followed by global oil production and subsequently global economic activities. The study recommends that policy makers have to take into cognizance the trend in oil prices in the formulation of policies that affect the stock market.*

**Key Words:** Oil Price, Stock Market Index, SVAR

### 1.0 Introduction

Stock market provides the platform for the diversion of funds from surplus spending unit to deficit spending unit and as such play a significant role in engendering economic growth. Fluctuations in stock prices are caused by a firm's internal factors and external widespread macroeconomic determinants. A firm's earning pattern, profit margin, cash flow streams, new inventions, market share holding and expansion with respect to geographic and product portfolio diversification along with management reputation, are the major internal factors influencing the firm's stock price. But the external macroeconomic determinants have been proven to have very strong bearing on the asset prices in the stock market and such determinants also indirectly affects the internal factors of firms (Masood, 2014). An important component of macroeconomic determinants is the price of oil as it affects production costs, profit and dividends of firms which may result to decline in stock prices.

The argument above provides the rationale for establishing a nexus between oil price fluctuations and stock prices, as the value of stock in theory equals discounted sum of expected future cash flows. These cash flows are affected by macroeconomic events that may be significantly influenced by oil price shocks. Thus, oil price changes may influence stock prices. Several empirical works has been carried out following the pioneering work by Jones and Kaul (1996) that was among the first to test the reaction of stock returns in four developed markets (Canada, Japan, the UK and the US) to oil price fluctuations using the standard cash flow dividend valuation model. While the result for US and Canada revealed that variations in the stock market can be accounted for entirely by the impact of oil shocks on cash flows, while that of, Japan and the UK were inconclusive. In addition, Sadorsky (1999) concludes that oil price changes are important determinants of stock market returns in the US by applying an unrestricted VAR model with GARCH effect which shows that stock markets respond negatively to a positive oil price change. Other studies like Filis (2010), Chen (2009), Miller and Ratti (2009), Park and Ratti (2008), Driesprong et al. (2008) and Gjerde and Sattem (1999) confirm these findings by Sadorsky (1999) and Jones and Kaul (1996). Opposing the finding of Jones and Kaul among others is a study by Huang et al. (1996). They focus their research on the relationship between daily oil futures returns and daily U.S. stock returns for the sample period 1979-1990. By using a VAR approach they find evidence that oil future returns do lead some individual oil company stock returns, but do not find any impact on aggregate stock returns. Similar result is also obtained by **Chen et al.** (1986) who find no overall effect of oil price changes on asset prices in the U.S. for the period 1959 to 1984. However, Killian (2008a) criticizes all these analyses because the treated oil price shock as exogenous. Thus, this paper investigated how the structural shocks characterizing the endogenous character of oil price changes affect stock prices in Nigeria, by employing structural VAR (SVAR) methodology proposed by Kilian and park (2009) and monthly data which covers 1994M1-2015M12. The following variables were included in the model: Kilian index, global oil supply, real oil price and real stock market index. Also, impulse response function (IRF) and variance decomposition (VD) were used to investigate the response of stock market to oil price shocks and to measure the contributions of oil price shocks to variations in stock market respectively.

The other sections of this paper are arranged as follows. Section 2 provides a brief review of existing relevant literature and outlines the focus of this paper. Section 3 discussed stylized fact about the variables used in the model; Section 4 describes the data and empirical methodology applied in this paper. Section 5 reports the estimation results. Finally, Section 6 concludes the main findings of the analysis.

## 2.0 Theoretical and Conceptual Framework

Following the pioneering work of Chen, Roll and Ross (1986) that systematically investigate the impact of macroeconomic innovations on stock price returns using the arbitrage pricing theory. They found that interest rates, inflation rates, bond yield spreads, and industrial production have risk that is priced in the stock market. They did not, however, find any evidence that oil price risk is rewarded by the stock market.

The theoretical model used in this work is based on the model suggested by Huang et al (1996) who suggested that macroeconomic variables such as commodity price can have a significant impact on the stock return of a firm. Assuming firm i an infinite stream of constant expected cash flow, (E(CFL)), discounted by discount rate, r, or more formally:

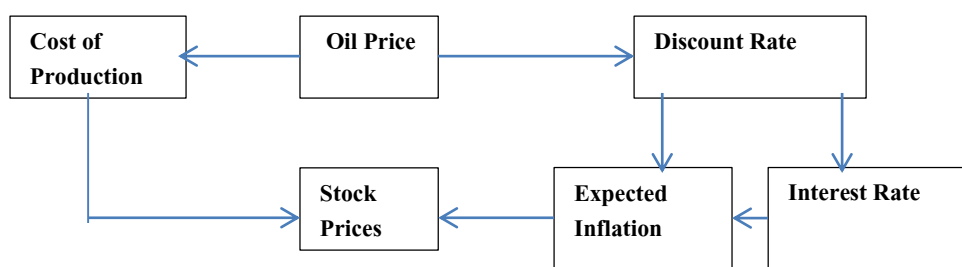
$$P_i = \frac{E(CFL)}{E(r)} \quad 1$$

Where  $E(.)$  is the expectation operator, and it follows that the realized stock returns can be expressed as follows;

$$R_i = \frac{dp}{p} = \frac{d(E(CFL))}{E(CFL)} - \frac{d(E(r))}{E(r)} \quad 2$$

$R_i$  in eqn.2 represent stock return computed as  $\log(\frac{SP_t}{SP_{t-1}})*100$ ; and  $d(.)$  is the differentiation operator. Huang et al (1996) notice that stock returns are influenced by systematic movement in expected cash flows as well as by discount rates. As a follow up to these they identified two channels through which oil prices can impact stock prices (returns). First, oil is considered an input in the production process. As such a rise in the oil price raises the cost of production, which will depress aggregate stock prices. Second, as explained by Huang et al. (1996), expected oil prices also affect stock returns via the discount rate, which consists of both the expected inflation rate and the expected real interest rate. Since, both expected inflation and interest rates are influenced by oil prices, for a net importer of oil an oil price increase will put downward pressure on the country's foreign exchange rate and upward pressure on the expected domestic inflation rate. A higher expected inflation rate raises the discount rate, which has a negative effect on stock returns.

**Figure 1: Flow Chart Showing the Transmission from Oil Price to Stock Prices.**



*Source: Designed by the authors after consulting literature*

In most developing economies, a steady and low inflation helps the growth in real sector, and in effect have a positive effect on stock prices. Most previous studies however, Fama and Schwert (1977), Geske and Roll (1980), Chen, Roll and Ross (1986), Chen (1991), and DeFina(1991) document negative relationship between stock price and inflation. For the cost of production channel



## 2. 1 Literature Review

In order to investigate the empirical relationship between alternative energy stock prices, technology stock prices, oil prices, and interest rates (Henriques & Sadorsky, 2008) estimated a four variable vector autoregression model. The results show technology stock prices and oil prices each individually Granger cause the stock prices of alternative energy companies. Simulation results show that a shock to technology stock prices has a larger impact on alternative energy stock prices than does a shock to oil prices.

Also by using a structural VAR (SVAR) model with monthly data covering the period 1973-2006 Killian and Park (2009) found that in the long run, on average, 22 % of variations in aggregate stock returns can be explained by shocks to the oil price. Similar study by Killian (2009), also make the distinction between demand and supply shocks and emphasizes in their study the importance of the demand-shock channel.

Papapetrou (2001) also extended the analysis to other countries using a multivariate VAR approach to investigate the dynamic relationship between oil prices, real stock prices, interest rates, real economic activity and employment for Greece using monthly data for the period 1989:1 to 1999:6. The result shows that oil price shocks have a negative effect on stock prices through its immediate negative impact on output and employment.

Park and Ratti (2008) estimate a multivariate VAR model with monthly data from 1986:1 to 2003:4 using both linear and non-linear specifications of oil price, the findings is that oil price shocks have a negative and significant impact on stock returns for the U.S. and 13 European countries. However, the results are more significant using world real oil price. Apergis and Miller (2009), on the other hand, only find a small effect of oil price shocks on international stock markets using a VAR methodology with monthly observations from 1981 to 2007 for Austria, Canada, France, Germany, Italy, Japan, the U.K. and the U.S.

In a study of 12 European oil-importing countries, Cunando and Perez de Gracia (2013) used a VAR and VECM methodology for the period 1973-2011. They find that oil price changes have a significant and negative impact on stock market returns in most of the countries in the sample. Also, by making a distinction between oil supply and demand shocks, the result show that oil supply shocks demonstrate a greater negative effect on real returns using both world oil price and local oil prices.

Another study by (Masood, 2014) investigates the impact of international oil price fluctuation on the performance of stock markets in Pakistan and KSE-100 Index is taken as sample for analysis. The study also analyzed the significance of political stability in the determination of stock market performance. The results revealed that the oil prices, exchange rate and foreign private portfolio investment have positive correlation with stock market performance while democratic set up is found to have a negative impact over stock market performance in Pakistan.

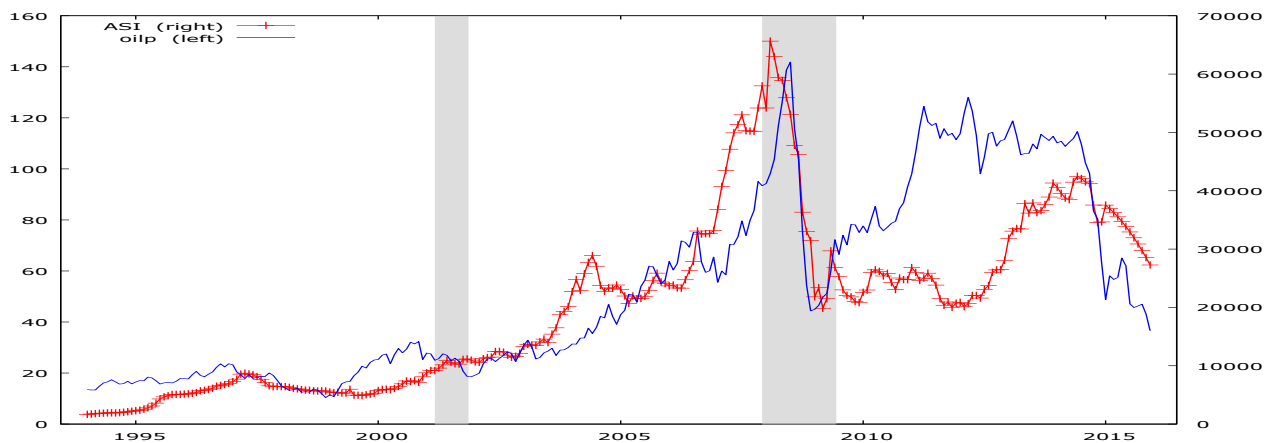
Among the studies conducted in Nigeria, (Adaramola, 2012) examines the long-run and short-run dynamic effects of oil price on stock returns in Nigeria over 1985:1–2009:4 using the Johansen cointegration tests. A bi-variate model was specified and empirical results show a significant positive stock return to oil price shock in the short-run and a significant negative stock return to oil price shock in the long-run. The Granger causality test shows strong evidence that the causation runs from oil price shock to stock returns; implying that variations in the Nigerian stock prices are explained by oil price volatility. Another study by (Akomolafe & Danladi, 2014) analyses the relationship between the industrial stock returns and changes in oil price. The variables considered include stock market returns for the selected industries are; banking, oil and gas, and construction industries. World oil price and market all share index to capture stock market size. Co-integration and Vector Error Correction mechanism result indicates that industries belonging to sectors apparently do not directly affected by oil prices, are also sensitive to oil price changes. The banking sector responds mostly to change in oil price.

The focus of this paper is to contribute to the literature by investigating the relationship between oil price and stock prices within the SVAR framework. First, this paper identifies three major shocks to the stock market, these includes supply shocks, demand shocks and oil price shocks to an oil producing and consuming country like Nigeria. In other words, the objective of this paper is to examine the relationship between stock market and innovations from oil production, global economic activities, oil price and shocks to the stock market.

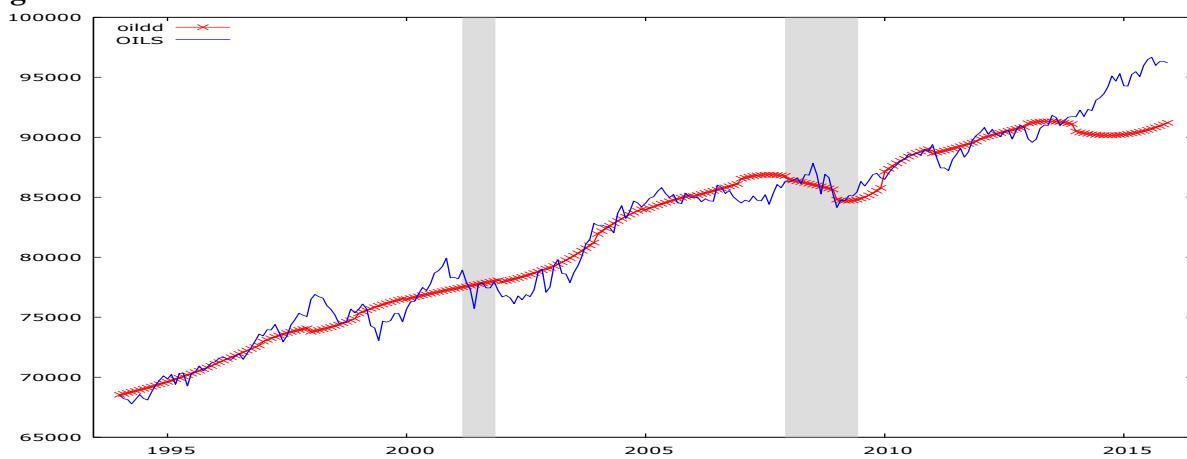
### **2.1 Stylized Fact**

Figure 1 shows the plot of all share index and oil price all in nominal terms. Note closely how each variable track each other which accord to common sense since the figures shows that high oil price implies higher activity in the stock exchange market. Figure 2 shows the trend of global oil demand and global oil production in most of the periods there are gaps between the two trends which explain the dynamics of price movement. For instance, in recent time drastic decline in oil price could be explained with what seemed like a glut in the oil market where global oil production exceeded oil demand explain the recent downward trend in oil price. However, trend in Figure 3 shows the movement in global economic activity and oil price, note that for the most part, the two variables move in opposite directions. A lower oil price coincides with higher global economic activities and vice versa.

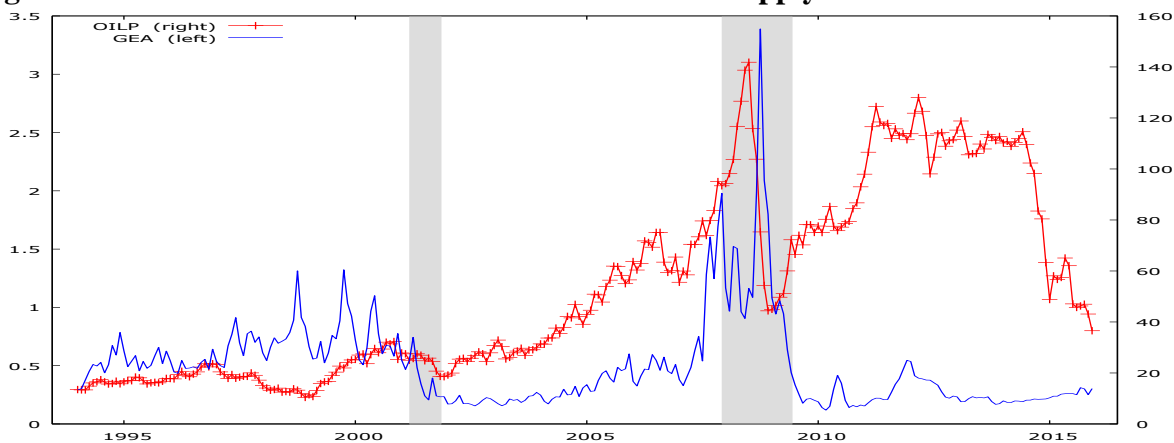




**Figure 1: Trend of All Share Index and Oil Price**



**Figure 2: Trend of Global Oil Demand and Global Oil Supply**



**Figure 3: Trend of Oil Price and Global Economic Activities (GEA)**

### 4.0 Methodology

#### SVAR MODEL

The empirical model uses global oil production (oilprod), global real economic activities (rea), all share index (ASI) and oil price (oilp). The VAR model used in this paper is based on monthly data; all variables are expressed in log form. The reduced form of VAR is presented below as:

$$y_t = c_0 + \sum_{i=1}^p A_i y_{t-i} + \varepsilon_t \text{-----1}$$

Where  $c_0$  is a vector of constant,  $p$  denotes the maximum lag length,  $A_i$  are the 4x4 parameter matrix and  $\varepsilon_t$  is a vector of error terms

The structural representation of the VAR model of order  $p$  takes the following general form

$$A_0 y_t = c_0 + \sum_{i=1}^p A_i y_{t-i} + B \varepsilon_t \text{-----2}$$

Where  $y_t$  is a 4x1 vector of endogenous variables i.e.  $y_t = [\text{oilpro, gea, oilp, asi}]$ ,  $A_0$  represent the 4x4 contemporaneous matrix,  $A_i$  are 4x4 autoregressive coefficient matrices,  $\varepsilon_t$  denotes 4x1 vector of structural disturbance assumed to have zero covariance and are also serially uncorrelated. The covariance matrix of the structural disturbances takes the following form

$$E[\varepsilon_t \varepsilon_t'] = D = \begin{bmatrix} \sigma_1^2 & 0 & 0 & 0 \\ 0 & \sigma_2^2 & 0 & 0 \\ 0 & 0 & \sigma_3^2 & 0 \\ 0 & 0 & 0 & \sigma_4^2 \end{bmatrix}$$

In other to get the reduced form of the structural model (2) we multiply both sides with  $A_0^{-1}$ , such that

$$y_t = a_0 + \sum_{i=1}^p B_i y_{t-i} + \epsilon_t \text{-----3}$$

Where  $a_0 = A_0^{-1}c_0$ ,  $B_i = A_0^{-1}A_i$ , and  $\epsilon_t = A_0^{-1}\varepsilon_t$ . The reduce form errors  $\epsilon_t$  are linear combinations of the structural errors  $\varepsilon_t$ , with a covariance matrix of the form  $E[\epsilon_t \epsilon_t'] = A_0^{-1}DA_0^{-1}$ .

However, if the model above actually generated the data, then the four endogenous variables depends on four types of structural shocks which includes; demand shock, supply shock, oil price shock and volatility in the stock market. However, a four variable system imposes ten restrictions on the elements in  $A_0$ , six more restrictions are then needed to identify  $A_0$ , which will be achieved from the restrictions on the long run multipliers of the  $A(L)$  matrix

$$\begin{bmatrix} \varepsilon_{1,t}^{SS} \\ \varepsilon_{2,t}^{DD} \\ \varepsilon_{3,t}^{OP} \\ \varepsilon_{4,t}^{SSM} \end{bmatrix} = \begin{bmatrix} a_{11} & 0 & 0 & 0 \\ a_{21} & a_{22} & 0 & 0 \\ a_{31} & a_{32} & a_{33} & 0 \\ a_{41} & a_{42} & a_{43} & a_{44} \end{bmatrix} \begin{bmatrix} \varepsilon_{1,t}^{OILPROD} \\ \varepsilon_{2,t}^{GEA} \\ \varepsilon_{3,t}^{OILP} \\ \varepsilon_{4,t}^{ASI} \end{bmatrix} \text{-----4}$$

Where SS= supply-side shocks, DD=aggregate demand shock, OP= oil price shock, and SSM= shock to stock market.

The identifying restriction for both oil supply and global demand implies that both variables are contemporaneously exogenous to other variables in the system. In other words, oil production does not contemporaneously react to an increase or decrease in oil demand, caused by higher or lower economic activities, due to adjustment costs in oil production. The plausibility of this restriction is that it is unlikely for oil producing country to react immediately to an upsurge in global economic activities within the same month. In the same way, global economic activities are not contemporaneously influenced by oil prices due to the time that is required for the world economy to react. On the contrary, an aggregate demand shock will have an immediate impact on oil prices and stock market behavior, considering the reaction time of the commodities and financial markets. Turning to the oil price innovation, any increase in the price can be driven by supply-side events, aggregate demand-side events, as well as, oil specific demand events which could not be instantaneously felt in the stock market. Thus, oil production shocks, as well as, aggregate demand shocks can contemporaneously trigger responses from the oil prices. In highly liquid markets, innovations in the stock market react contemporaneously to all aforementioned shocks.

#### 4.1 Data Description

The time period considered for this paper is 1994M01 - 2015M12. For stock market prices, this paper used the all share index (ASI) which is deflated with CPI and the data is obtained from *Central Bank of Nigeria Statistical Bulletin (CBN)*. The data for oil price is deflated with CPI and is obtained from UNCTAD Statistics (2015). Following a large body of research on the significant effect of energy supply disruptions on economic activities, oil production variable is included in our model to capture oil supply shock. Following Kilian (2009), the oil supply shocks are defined as unpredictable innovations to global oil production. Data on global oil production over the period is obtained from the US Energy Information Department (EIA) database. In the EIA data, global oil supply is defined as crude oil including lease condensate. In this paper, the proxy variable for global economic activity is calculated as the difference in the yield spread between the three month Eurodollar LIBOR (London Interbank Borrowing Rate) and the three month US Treasury bill rate (the “TED spread”) and the data is obtained from the Federal Reserve Bank of St. Luis. The yield spread is an interesting proxy because movements in the yield curve are often a good predictor of future economic performance. Further, fluctuations in the TED spread may capture fluctuations in global credit risks (see Ferson and Harvey, 1994, 1995).

## 5.0 Results and Discussion

According to the unit root tests, out of the four stationary endogenous variables forming the new system, 2 are first difference while the remaining 2 are stationary at levels. In the estimation procedure, the paper used the levels of all the series since all the variables are integrated of order one as indicated in the table below using the ADF and PP unit root tests as evident in Table 1 below.

**Table 1: Stationarity Test**

Augmented Dickey Fuller Test					Philips Peron Test				
Variables	Levels		First Difference		Levels		First Difference		OOI
	With C	With C & T	With C	With C & T	With C	With C & T	With C	With C & T	
GEA	-4.2250	-4.3653			-3.9529	-4.1084			I(0)
OILPROD	-2.0143	-1.7960	-3.8876	-4.1995	-1.9964	-1.8969	-12.0109	-12.0718	I(1)
OILP	-3.7388	-3.6974			-4.6387	-4.5348			I(0)
ASI	-2.6297	-2.5552	-6.0559	-6.0735	-2.1321	-2.0872	-14.5972	-14.5843	I(1)

Note: T = trend, C = constant and OOI = order of integration. ADF test: 1 per cent = -3.654, 5 per cent = -2.957; Philip Perron 1 per cent = 3.646, 5 per cent = -2.954

The result from Table 1 above shows that both global economic activity (*GEA*) and real oil price (*OILP*) are integrated of order zero I(0), while global oil production (*OILPROD*) and all share index deflated with *CPI* is integrated of order one I(1).

**Table 2: Descriptive Statistics**

	ASI	GEA	OILPROD	OILP
Mean	20559.21	0.498048	70729.41	53.52360
Median	21486.61	0.415070	72797.84	42.55000
Maximum	65652.38	3.388590	77953.71	141.8600
Minimum	1666.300	0.118420	60632.29	10.41000
Std. Dev.	14562.73	0.388825	4856.033	36.57442
Skewness	0.723346	2.874949	-0.390666	0.618505
Kurtosis	2.926591	16.41897	1.956079	1.987779
Jarque-Bera	23.08137	2344.431	18.70274	28.10265
Probability	0.000010	0.000000	0.000087	0.000001
Observations	264	264	264	264

The descriptive statistics of the variables used in this work as presented in table 2 shows that the averages for ASI, GEA, OILPROD and OILP are 20559.21, 0.4980, 70729.41 and 53.52360 respectively. The average for ASI ranges between 1666.300 and 65652.8; for GEA it ranges between 0.1184 and 3.3886; for OILPROD it ranges between 60632.29 and

77953.71 while OILP ranges from 10.4100 and 141.8600 respectively. The standard deviations for all the series are high suggesting that the dispersion around the averages is relatively wide. The skewness value of 0.723, 2.8749, and 0.6185 for the ASI, GEA and OILP respectively indicated that both series have more negative than positive values and thus have a longer right tail with the exception of OILPROD that has a longer left tail due to its negative skewness. Likewise, kurtosis that measures the peak or flatness of the series distribution is greater than 3 in one of the series (GEA), which is suggestive that the series peaked to the surface or leptokurtic relative to the normal distribution.

The findings of the unit root raised the question whether to estimate the SVAR in levels (i.e. with variables in non-stationary form), first-differenced (with variables in stationay form).A considerable literature on this issue tends to suggest that even if the variables have unit roots, it is still desirable to estimate a structural VAR in level. Sims, Stock and Watson (1990) show that the estimated coefficients of a VAR are consistent and the asymptotic distribution of individual estimated parameters is standard (i.e., the asymptotic normal distribution applies) when variables have unit roots and there are some variables that form a co-integrating relationship. Under this circumstance, a VAR specified in first differences leads to misspecifications. Since a VAR specified in first difference assumes that variables are not co-integrated because no error correction terms are included. In other words, if there is co-integration, then such a model in first difference is misspecified (Basher, Haug, & Sadorsky, 2010).

**Table 3.Cointegration Result**

Date: 04/25/16 Time: 20:56				
Sample (adjusted): 1994M06 2015M12				
Included observations: 259 after adjustments				
Trend assumption: Linear deterministic trend				
Series: OILPROD GEA OILP ASI				
Lags interval (in first differences): 1 to 4				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.129708	59.42092	47.85613	0.0029
At most 1	0.048325	23.43900	29.79707	0.2252
At most 2	0.027799	10.61023	15.49471	0.2366
At most 3	0.012693	3.308417	3.841466	0.0689
Trace test indicates 1 cointegratingeqn(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 *	0.129708	35.98193	27.58434	0.0033
At most 1	0.048325	12.82876	21.13162	0.4681

At most 2	0.027799	7.301816	14.26460	0.4541
At most 3	0.012693	3.308417	3.841466	0.0689
Max-eigenvalue test indicates 1 cointegratingeqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Based on the cointegration result presented on Table 3 above, the variables used in this model are estimated at level and converted to log form.

### 5.1 The Main SVAR Result

The purpose of the SVAR model is to examine the dynamic adjustments of each of the variable in terms of the variance decomposition and the impulse response function (IRF). This paper estimated the SVAR with bootstrap standard error as well as 100 replications (95% Efron Percentile CI) using JMulTi econometrics software. The results as presented in appendix 1 show that innovation in the global oil production do exercise significant impact on the stock market variable. In other words, positive supply shock indicated an increase in the ASI from 1<sup>st</sup> to the 12<sup>th</sup> horizon after which the effect becomes insignificant, this result is in line with the argument that OPEC decision on oil production do not have impact on the stock market and complements the evidence by Basher et al (2012), Killian and Park (2009) who argued that changes in oil production do not have effect on stock market returns. A similar observation could be made for oil price as its effect is not significant over a long horizon. As rightly stated by (Arouri, 2011); firms engage in hedging strategy which ameliorates the effect of adverse price movement. With regards to the effect of global economic activities on stock market movement, increase in global economic activities tends to signal improvement in stock prices. In other words, improvements in economic activities tend to reduce stock market volatility.

The variance decomposition results presented in Table 4 below for all share index (*ASI*), oil price (*OILP*), global economic activities (*GEA*) and oil production (*OILPROD*) in logarithmic levels at selected horizons. The initial contribution of supply shock, demand shock, oil price shock and shock to the stock market are presented from the 1<sup>st</sup> to the 20<sup>th</sup> horizon. Supply shock explains the majority of the forecast error variance of stock market movement outside its own shock constituting 22% of variation in ASI at the 20<sup>th</sup> horizons, followed closely by movement in the global economic activities. The variance decomposition for variation in oil price shows that supply shock constitutes the major driver for movement in oil price constituting about 41% of forecast error variance, this result is in line with apriori expectation and constitutes the reason why OPEC member countries try to tailor its supply policy to avoid supply glut in the market.

**Table 4: Variance Decomposition of ASI, GEA, Oil price and OILPROD**

% of Variance      % of Variance      % of Variance      % of Variance  
 In ASI due to:    In OILP Due to:    In GEA Due to:    In OILPROD Due to:  
 $\epsilon_t^{SS}$   $\epsilon_t^{DD}$   $\epsilon_t^{OP}$   $\epsilon_t^{SSM}$   $\epsilon_t^{SS}$   $\epsilon_t^{DD}$   $\epsilon_t^{OP}$   $\epsilon_t^{SSM}$   $\epsilon_t^{SS}$   $\epsilon_t^{DD}$   $\epsilon_t^{OP}$   $\epsilon_t^{SSM}$   $\epsilon_t^{SS}$   $\epsilon_t^{DD}$   $\epsilon_t^{OP}$   $\epsilon_t^{SSM}$

1 0.01 0.37 0.12 0.51	1 0.28 0.27 0.42 0.03	1 0.11 0.30 0.14 0.45	1 0.58 0.00 0.40 0.02
2 0.03 0.34 0.09 0.54	2 0.31 0.32 0.36 0.02	2 0.14 0.29 0.13 0.44	2 0.66 0.00 0.32 0.02
3 0.05 0.33 0.08 0.54	3 0.32 0.34 0.33 0.01	3 0.16 0.29 0.12 0.43	3 0.71 0.00 0.27 0.02
4 0.07 0.32 0.07 0.54	4 0.33 0.35 0.31 0.01	4 0.16 0.30 0.12 0.42	4 0.75 0.01 0.23 0.01
5 0.08 0.31 0.07 0.54	5 0.34 0.35 0.30 0.01	5 0.16 0.31 0.11 0.41	5 0.78 0.01 0.20 0.01
6 0.09 0.30 0.06 0.54	6 0.35 0.35 0.29 0.01	6 0.15 0.33 0.11 0.41	6 0.81 0.01 0.18 0.01
7 0.11 0.29 0.06 0.54	7 0.36 0.35 0.28 0.01	7 0.14 0.35 0.11 0.40	7 0.83 0.01 0.16 0.01
8 0.12 0.28 0.06 0.54	8 0.36 0.35 0.28 0.01	8 0.14 0.37 0.10 0.39	8 0.84 0.01 0.14 0.01
9 0.13 0.28 0.05 0.54	9 0.37 0.35 0.27 0.01	9 0.13 0.39 0.10 0.38	9 0.86 0.01 0.13 0.00
10 0.14 0.27 0.05 0.54	10 0.37 0.35 0.27 0.00	10 0.12 0.41 0.10 0.37	10 0.87 0.01 0.11 0.00
11 0.15 0.26 0.05 0.54	11 0.38 0.35 0.27 0.00	11 0.12 0.42 0.09 0.36	11 0.88 0.01 0.10 0.00
12 0.16 0.25 0.05 0.54	12 0.38 0.35 0.27 0.00	12 0.12 0.44 0.09 0.35	12 0.89 0.01 0.09 0.01
-----	-----	-----	-----
20 0.22 0.21 0.04 0.53	20 0.41 0.34 0.25 0.00	20 0.16 0.49 0.07 0.28	20 0.93 0.01 0.05 0.01

As evidence from the forecast error variance decomposition, majority of the movement in global economic activity is explain majorly by its own shock followed closely by development in the stock market that explain 28% of variation in global economic activity while supply shock constitutes 16% of variation in global economic activity. This result confirm that findings that firm hedge against unwarranted movement in oil price as it constitutes the least in terms of variation to global economic activity (7%). The forecast error variance decomposition for oil production (OILPROD) is explained majorly by its own shock (93%) followed closely by development in oil price.

**Table 5: Estimated Long Run Multiplier Matrix**

$$\begin{matrix} \epsilon_t^{SS} & \epsilon_t^{DD} & \epsilon_t^{OP} & \epsilon_t^{SSM} \\ \begin{bmatrix} OILPROD \\ GEA \\ OILP \\ ASI \end{bmatrix} & \begin{bmatrix} 0.2685 & 0.0000 & 0.0000 & 0.0000 \\ 4.4866 & 2.7134 & 0.0000 & 0.0000 \\ 1.9284 & 1.1696 & 1.1219 & 0.0000 \\ 2.8250 & 0.7608 & -0.4979 & 0.0102 \end{bmatrix} \end{matrix}$$

All coefficients are significant on the basis of the bootstrap t-statistics

From table 5 above, the estimated long run matrix shows that a positive supply shock leads to increase in oil production, global economic activities, oil price and improvement in stock prices. A positive demand shock is restricted to have no long run effect on oil production, but is estimated to have positive effect on global economic activities, oil price and stock market movement. A positive oil price shock is restricted to have no long run effect on oil production and global economic activities, but have positive effect on oil price and a fall in stock prices (ASI). A positive shock to the stock market is restricted to have only long run effect on stock prices, which was estimated to be positive in response to shock to the stock market. All the



long run multipliers obtained from the restricted estimation are consistent with the theoretical model.

## 6. Conclusion

This paper investigated the links between oil price shock and stock market behavior. To this end, we rely on the structural vector auto-regression (SVAR) model to analyze the effects of oil price shocks on stock market performance in Nigeria between 1994:M1-2015:M12. The innovations in global oil production do exercise significant impact on the stock market variable. In other words, positive supply shock indicated an increase in the ASI from 1<sup>st</sup> to the 12<sup>th</sup> horizon after which the effect becomes insignificant. A similar observation could be made for oil price as its effect is not significant over a long horizon, with regard to the effect of global economic activities on stock market movement, as expected increase in global economic activity tend to signal improvement in stock prices. In other words, improvements in economic activity tend to reduce stock market volatility.

The results from the variance decomposition show that supply shock explains the majority of the forecast error variance of stock market movement outside its own shock constituting 22% of variation in ASI at the 20<sup>th</sup> horizons, followed closely by movement in global economic activities. The variance decomposition for variation in oil price shows that supply shock constitutes the major driver for movement in oil price constituting about 41% of forecast. The findings of this paper should be of great interest to researchers, regulators and market participants. In particular, Nigeria as an exporter of crude oil and a net importer of refined petroleum products should take necessary measures to avoid the transmission of shock from oil to the stock market. In other words, policy makers have to take into cognizance the trend in oil prices in the formulation of policies that affect the stock market.

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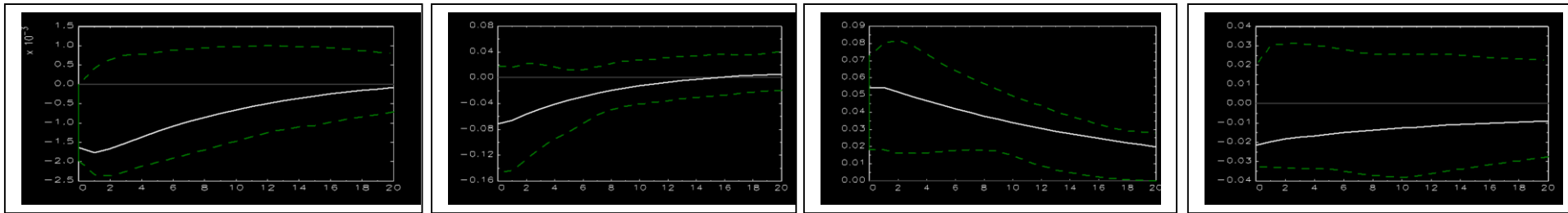
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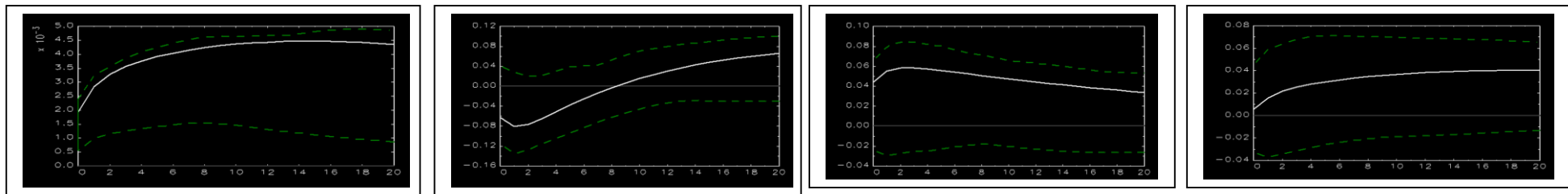
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Appendix 1

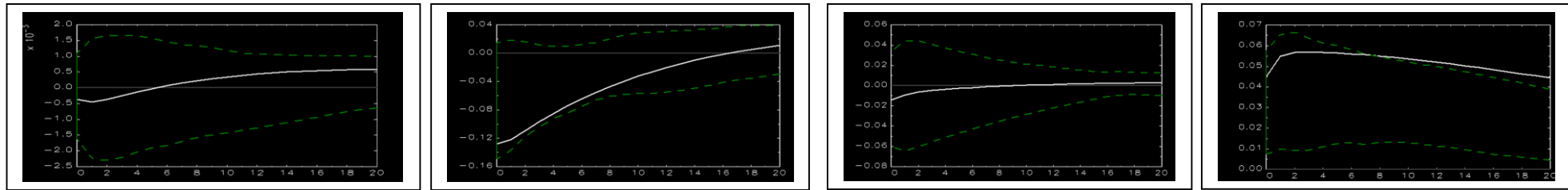
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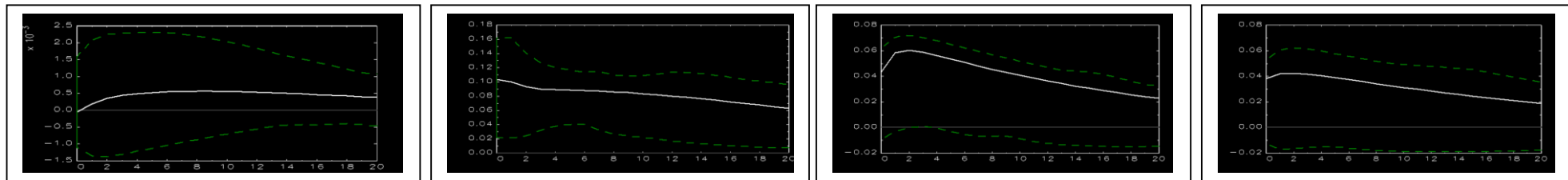
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Accumulated Response of GEA to SS Accumulated Response of GEA to DD Accumulated Response of GEA to OP Accumulated Response of GEA to SSM



## HUMAN CAPITAL AND ENTREPRENEURSHIP CHALLENGES FOR NIGERIA ECONOMIC DEVELOPMENT

John O. Aiyedogbon (PhD)  
Department of Economics  
Bingham University, Karu. Abuja. [johnaiyedogbon@gmail.com](mailto:johnaiyedogbon@gmail.com)  
+234(0)8033008429

Prof. Sarah Anyanwu  
Department of Economics  
University of Abuja  
[Sarahanyanwu2003@yahoo.com](mailto:Sarahanyanwu2003@yahoo.com)  
+234(0)8036130284

Bright O. Ohwofasa  
Department of Social Sciences (Economic Unit) Delta State Polytechnic, Otefe-  
Oghara [brightohwofasa@yahoo.com](mailto:brightohwofasa@yahoo.com)  
+234(0)8036793389

### Abstract

The paper focuses on human capital, entrepreneurship and economic growth in Nigeria for the period, 1980-2014. We argued that economic growth in Nigeria has not been impressive because small and medium scale enterprises where the bulk of the country entrepreneurs are concentrated are hampered due to poor investment in human capital. The objective of the study is to examine the contribution of human capital and entrepreneurship to economic growth in Nigeria. The study employed ARDL model on variables such as real GDP, human capital development (a proxy for capacity building), government expenditure on education, expenditure on health and a dummy of entrepreneurship. The result shows that while expenditure on health exerts positive impact on economic growth, impact of human capital development, expenditure on education and level of entrepreneurship is negative. The result also shows that while in the short run changes in the explanatory variables did not affect economic growth, impact of such changes on economic growth in the long run is inevitable. The paper recommended among other things that allocation to the educational sector should be increased without further delay while infrastructural deficit in Nigeria should be urgently addressed to encourage entrepreneurial spirit.

**Keyword:** Economic growth, Entrepreneurship, Human Capital, Co-integration Test, ARDL Model.

### 1. Introduction

Human capital development is central to sustaining economic development because it is the greatest asset of any organization. This explains why most developed and emerging economics focus on building human capital, as only those countries and enterprises that possess what it takes to be competitive will survive in the current global economy. The

Nigerian economy has to be efficient and competitive in the new world order in which national frontiers no longer constitute barriers to human, material and capital flows. One of the greatest challenges facing Nigeria in this millennium is, therefore, the issue of capacity building to enhance productivity in the economy.

There can be no effective entrepreneurial spirit without adequate capacity building and the effort made in Nigeria in this direction is very little. The process of capacity building must begin with massive investment in the educational and the health sectors which ensure that majority of the citizens are healthy, adequately educated and fed. When a person has acquired basic education which may be primary or secondary he is likely to be more successful in any kind of artisans be it tailoring, welding and fabrication, carpentry, detergent or soap making, bakery services etc, or a more compress activities like manufacturing or services. In Nigeria, this is not the case as there are no adequate environment for learning due to poor facilities and infrastructural decades in most public schools. And the few private schools with such basic facilities, the cost of schooling is one of the highest in the world and therefore beyond the reach of average Nigerians. It is for this reason that most artisans in Nigeria are illiterates and whereas artisans are expected to form the bulk of entrepreneurship, little wonders the near collapse of entrepreneurial spirit in Nigeria.

The socio-economic impact of entrepreneurship on the economic development of Nigeria is difficult to accurately measure or estimate, but it is believed to be highly dynamic and significant (Chu, Kara and Benzing, 2010). These authors estimated that between 45 and 60 percent of the urban labour force work for small businesses. Another study suggests that entrepreneurship has been beneficial because the Nigerian private sector comprising of small and medium enterprises provides diverse employment opportunities for 50 percent of the country's population and 50 percent of its industrial output (Ariyo (2005). On account of encouraging entrepreneurial initiatives, the country has experienced exponential growth in the number of private firms. However, majority of these businesses are very small when their operations are measured in terms of capital, employment and revenues. There are also the problems of small businesses in accessing bank credits, but the most serious and damaging one threatening the state of entrepreneurship in Nigeria is lack of government interest and support for micro, small enterprises (Ariyo, 2005, Chu et al., 2010). Besides, small and medium enterprises development is hampered by myriads of challenges such as bad roads, bribes by government officials, multiple taxes, and erratic power supply as well as rising overhead costs on transportation and communication. More importantly, economic growth has eluded Nigeria on account of poor utilization of its numerous oil wealth for communal benefits, as current socio-economic indicators suggest that the nation's mineral wealth has become worthless and a source of misery (Alan, 2010).

Presently, the country lags behind her peers in most human development indicators. For example, while China and Thailand were on the 6<sup>th</sup> and 9<sup>th</sup> positions respectively on the 2013 Global Hunger Index, Nigeria was ranked 38<sup>th</sup>, a development considered worrisome by analysts. It is against this backdrop that the current study is germane. Consequently, the sequence of the paper is clear. Following the introduction, section two contains brief review of related literature while section three specified the model. Whilst section four presents data and discussion, section five concludes the study and made policy recommendation based on findings.

## 2. Brief Review of Related Literature

Entrepreneurship can be referred to as self-employment, and in the private sector of the economy, the key operator is mostly associated with the word entrepreneurship. He is called the coordinator, decision maker, risk bearer, manager, innovator, organizer, initiator, and so on (Wodi, 2012). Anele (2004) notes that entrepreneurship is not limited to any cultural, geographical or racial groups or the only preserve of large or small enterprises. The entrepreneur ranges from the ordinary peasant farmer, palm wine taper, oil miller to the highly altitude business men and women engaged in small, medium and large scale industrial, commercial and agricultural enterprises with modern and sophisticated technologies.

Osuala (1998) stresses that an entrepreneur is the person who carries out the functions of an enterprise. According to him, there are three types of entrepreneur namely: (1) the traditional entrepreneur: which is conservative and only practices what his predecessors had practiced in certain fields in the past. (2) The adaptive entrepreneur who only applies to existing tools in organizing, using and controlling economic activities. (3) The innovative entrepreneur which refers to a person who creates things anew in a manner that revolutionizes an organization of productive factor to the advantage of societies. In pointing out some characteristics that are common to most successful entrepreneurs, Olaitan (1996) argues that reasonable risks, self confidence, hard work, patience, tenacity, stability, accepting success or failure of one's work, setting plans for goals as well as initiatives are some of the characteristics of entrepreneur.

On capacity building, it is central to sustaining economic development because human capital is the greatest asset of any organization. This explains why most developed and emerging economics focus on building human capital, as only those countries and enterprises that possess what it takes to be competitive will survive in the current global economy (Sanusi, 2002). Capacity building has been defined in several ways. Generally, it entails the development of a workforce through the acquisition of technical and managerial efficiency and effectiveness in the overall performance of an organization. It could also be defined as the internalization of the knowledge, skills and processes that enable the formulation, implementation, monitoring and evaluation of set goals in an efficient manner (Sanusi, 2002). Yet, it could be viewed as a series of activities, which an organization, enterprise or even a nation needs to undertake to provide for itself, on a continuous basis, as well as the regular supply of skilled manpower to meet its present and future needs. Capacity building thus enhances the ability of human resources and institutions to perform or produce. It can be likened to an industrial processing by which basic "ores and raw metals are converted into useful tools, through heating, molding, tempering, shaping and sharpening for some ultimate purposes (Anyanwu, 2002).

Empirically, Ogbo and Nwachukwu (2012) assess the contributions of entrepreneurship through SME to economic development in Nigeria. The authors employed primary data derived from questionnaire with a randomly selected sample of 100 enterprises spread around some states in Nigeria. Using SPSS on a chi-square distribution and analyses of variance, they found that SMEs have performed below expectation due to factors such as attitude and habits of SMEs themselves environmental related factors, instability of governments and frequent government policy changes etc. Oyelola, Ajiboshin, Raimi, Raheem and Igwe (2013) use a narrative-textual case study (NTCS) to

examine the contribution of entrepreneur to economic development. The paper reveals that the right business environment for entrepreneurship is lacking in Nigeria on account of the challenges of frequent power outages, bad roads, multiple taxes, extortion of money from SMEs by government officials, lack of genuine support service for SMEs and expensive transportation/telecommunications costs.

Mamman (2013) evaluates the effects of entrepreneurship education (EE) on capacity building among polytechnic students in Nigeria. A sample of 341 final year students of Higher National Diploma (HND II) who took entrepreneurship modules from 6 polytechnics in North West Nigeria were drawn from three colleges namely: Business, Engineering and Environmental Studies. The study employs a one-way Analysis of Variance (ANOVA) and found that EE has students' level of entrepreneurial capacity. However, discernible differences exist in the magnitude of the impact across the different colleges and that indeed the findings contribute to the literature of EE itself by revealing the specific benefits Nigerian polytechnic students derived from the EE program. Akhuemonkhan, Raimi and Sofoluwe (2013) assess the effect of entrepreneurship education on employment stimulation in Nigeria. Employing econometric analysis they found that entrepreneurship development could be effective tools for poverty reduction, stimulating employment as well as fast-tracking realization of universal primary education and promoting gender equality.

Studies have also been conducted on capacity building and its contribution to economic growth and these authors argued that expenditure in education is one of the pillars to boost capacity building. Thus, Otu and Adenuga (2006) scrutinize the relationship between growth and human capital development from the period 1970-2003. The study employed co-integration and error correction model using variables such as real gross domestic product (real GDP), capital and recurrent expenditure on education, real gross capital formation and enrolment into primary, post-primary and tertiary institutions as proxy to human capital development. They found that investment in human capital accelerates economic growth. In a similar study, Lawanson (2009) investigates the impact of human capital on economic growth for the period 1983-2007. Using co-integration and error correction model, the paper found that while expenditure on health and primary school enrolment exert negative impact on economic growth, government expenditure on education, enrolment into post-primary and tertiary schools positively affect economic growth in Nigeria.

### 3. The model

The study adopted autoregressive distributed lag (ARDL) model which provides long and short run analysis of the impact of human capital on economic development. Primary, post-primary and tertiary enrolments were used as proxy variables for human capital. To ensure a robust result, government expenditure on education and health were included to the explanatory variables. Specifically the model is presented thus;

$$GDP = f(HCD, GEE, GEH, DUM) \dots \dots \dots (1)$$

Where:

GDP = real gross domestic product at 1990 constant price

HCD = Human Capital Development (i.e primary + secondary + tertiary education enrolments)  
 GEE = Government expenditure in education  
 GEH = Government expenditure in Health sector  
 DUM = dummy variable (proxy for entrepreneurship in Nigeria)

### 3.1 Technique of Analysis

Autoregressive distributed lag (ARDL) bounds testing approach to co-integration was originally developed by Pesaran and Pesaran (1997) and expanded by Pesaran, Shinb and Smith (2001). The model testing procedure starts with a test of null hypothesis of no co-integration. The calculated F-statistic is compared with the critical value tabulated by Pesaran et al., (2001). If the F-test statistic exceeds the upper critical value, the null hypothesis of no long-run relationship can be rejected regardless of whether the underlying orders of integration of the variables are I(0) or I(1) and if it falls below the lower bound we would conclude that the variables are I(0) and no co-integration is possible by definition. However, if the sample F-statistic falls between these two bounds, the test is inconclusive.

The first step in estimating the model is to determine the lag orders suggested by Schwarz Information Criteria (SBC) and Akaike Information Criteria (AIC) using a vector autoregressive (VAR) model. The smaller the value of an information criterion the better the result and as such we used the Schwarz criterion, as it's a consistent model-selector. Though in doing so some care was taken not to "over-select" the maximum lags. Thus, we pay some attention to the (apparent) significance of the coefficients in the model. Thus, the ARDL model of equation (1) is estimated below.

$$\Delta \ln GDP_t = \alpha_0 + \sum_{i=1}^K \alpha_{1i} \Delta \ln GDP_{t-i} + \sum_{i=1}^K \alpha_{2i} \Delta \ln HCD_{t-i} + \sum_{i=1}^K \alpha_{3i} \Delta \ln GEE_{t-i} + \sum_{i=1}^K \alpha_{4i} \Delta \ln GEH_{t-i} + \sum_{i=1}^K \alpha_{5i} \Delta \ln DUM_{t-i} + \beta_1 \ln GDP_{t-1} + \beta_2 \ln HCD_{t-1} + \beta_3 \ln GEE_{t-1} + \beta_4 \ln GEH_{t-1} + \beta_5 \ln DUM_{t-1} + \mu_t \dots \dots \dots (2)$$

From equation (2), the null hypothesis of no co-integration  $H_0: \alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = \alpha_5 = 0$  is tested against the alternative hypothesis  $H_1: \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 = \beta_5 \neq 0$ . If a stable long-run relationship is supported by Wald test compared with Table of value calculated by Narayan (2005), then in the second stage, the augmented ARDL (m, n, o, p, q, r) model is estimated as following:

$$\Delta \ln GDP_t = \alpha_0 + \sum_{i=1}^m \beta_1 \ln GDP_{t-i} + \sum_{i=1}^n \beta_2 \ln HCD_{t-i} + \sum_{i=1}^o \beta_3 \ln GEE_{t-i} + \sum_{i=1}^p \beta_4 \ln GEH_{t-i} + \sum_{i=1}^q \beta_5 \ln DUM_{t-i} + \varepsilon_t \dots \dots \dots (3)$$

And the final step is the estimation of the short-run dynamic coefficients via the error correction model to capture the speed of adjustment of economic growth as expressed below:



$$\Delta \ln GDP_t = \alpha_0 + \sum_{i=1}^K \alpha_{1i} \Delta \ln GDP_{t-1} + \sum_{i=1}^K \alpha_{2i} \Delta \ln HCD_{t-1} + \sum_{i=1}^K \alpha_{3i} \Delta \ln GEE_{t-1} + \sum_{i=1}^k \alpha_{4i} \Delta \ln GEH_{t-1} + \sum_{i=1}^K \alpha_{5i} \Delta \ln DUM_{t-1} + \lambda_0 ECT_{t-1} + \mu_t \dots \dots \dots (4)$$

Where the  $ECT_{t-1}$  is the error correction term resulting from the verified long-run equilibrium relationship and  $\lambda$  signifies the speed of convergence to the equilibrium process. Pesaran et al., (2001) argues that it is extremely important to ascertain the constancy of the long-run multipliers by testing the above error-correction model for the stability of its parameters using the cumulative sum of recursive residuals (CUSUM) and the cumulative sum of square of recursive residuals (CUSUMSQ) whose equations are detail in Brown, Durbin and Evans (1975).

#### 4. Results and Discussion

This section presents the results of unit test and the ARDL model estimates. Consequently, Table 1 contains the stationarity test results.

Table 1: Result of Unit Root test

Variable	Level	1 <sup>st</sup> Diff	Order	Included in test equation
LGDP	-1.980825	-4.352662*	I(1)	Trend & intercept
LHCD	-3.769443*	-4.152074*	I(0)	“
LGEE	-2.478361	-4.271464*	I(1)	“
LGEH	-2.271186	-4.533885*	I(1)	“
McKinnon C.V = 5% (*)	-3.5562	-3.5614		

Table 1 shows that human capital variable is stationary at level while real GDP, government expenditure on education and government expenditure on health were integration of order one variables, all at 5 percent confidence level. Consequently, the ARDL model is estimated with lag 1 as suggested by SC.

Table 2 is the ARDL model which is presented alongside the validity test with the p-value in parenthesis. The test shows that the model is statistically valid as is serially uncorrelated and rejects the heteroscedasticity hypothesis. Similarly, the CUSUM test not shown reveals that the model is stable.

Table 2: ARDL Model Estimate  
Dependent Variable:  $\Delta$ LGDP

Variable	Coefficient	Std error	t-statistic	Probability
Constant	-2.040030	1.362817	-1.496921	0.1486
DLGDP(-1)	0.003185	0.026123	0.121938	0.9041
DLHCD(-1)	-0.139671	0.093290	-1.497168	0.1486
DLGEE(-1)	0.018261	0.035919	0.508404	0.6162
DLGEH(-1)	-0.022915	0.036657	-0.625118	0.5383

LGDP(-1)	-0.098929	0.059358	-1.666646	0.1098
LHCD(-1)	0.200411	0.073494	2.726908	0.0123
LGEE(-1)	-0.025810	0.048330	-0.534038	0.5987
LGEH(-1)	0.024614	0.047852	0.514376	0.6121
DUM(-1)	-0.009236	0.007900	-1.169103	0.2549
R <sup>2</sup> = 51, F-stat = 2.58, DW = 1.68				
Diagnostic Test				
Serial correlation LM Test 1.917001(0.173113)				
ARCH LM Test 0.416041(0.523990)				

The purpose of Table 1 is mainly to determine the F-value necessary for bound test as the OLS regression with appropriate lag differences does not require the variable coefficients to be interpreted (Peseran et al., 2001).

**Table 3: ARDL Bound Test for Co-integration**

K	5 % Level		10 % Level	
	I(0)	I(1)	I(0)	I(1)
4	2.86	4.01	2.45	3.52
Computed F-Statistics = 4.20				

Notes: Critical values extracted from Narayan (2005) Table CI (iii) Case III: Unrestricted intercept and no trend.

Table 3 shows that the F-statistic is greater than the upper bound and we conclude that there is evidence of a long-run relationship between the time-series (at this level of significance or greater) in the period under review. Consequently, the error statistical model is presented below.

In Table 4, the lagged dependent variable was increased by one. This was done in order to correct for presence of serial correlation. Thus, the DW statistics of 2.08 reveals absence of autocorrelation which is further supported by the diagnostic test where the null hypothesis of no serial correlation cannot be rejected at the 5 percent level. Whilst the R<sup>2</sup> reveals that the explanatory variables explain about 56 percent of economic growth, the F-stat shows that the entire variables in the model are jointly significant.

**Table 4: ARDL ECT Estimate**

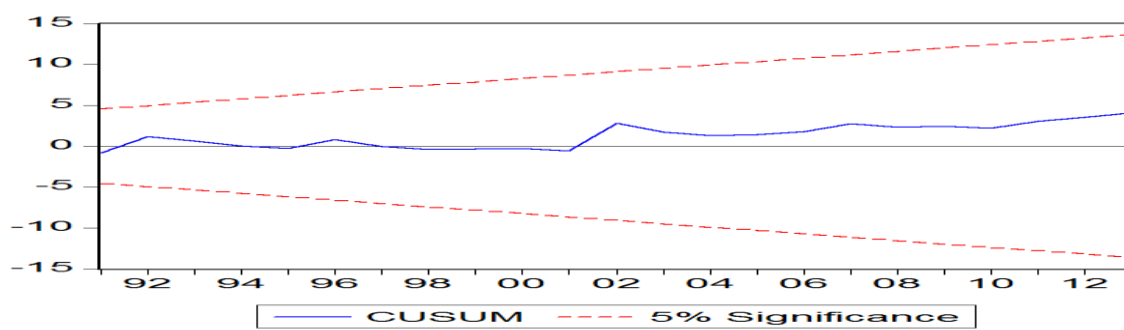
Dependent Variable:  $\Delta$ LGDP

Variable	Coefficient	Std error	t-statistic	Probability
Constant	0.044017	0.012043	3.654874	0.0013
DLGDP(-1)	0.408918	0.153292	2.667576	0.0138
DLGDP(-2)	-0.034210	0.021815	-1.568179	0.1305
DLHCD(-1)	-0.022159	0.088330	-0.250868	0.8041
DLGEE(-1)	0.007760	0.026958	0.287862	0.7760

DLGEH(-1)	-0.034495	0.025336	-1.361532	0.1865
DDUM(-1)	-0.006418	0.007340	-0.874402	0.3909
ECT(-1)	-0.102477	0.043466	-2.357634	0.0273
$R^2 = 0.56$ , F-stat = 4.16, DW = 2.08				
Diagnostic test				
Serial correlation LM Test: 1,034016(0.372985)				
ARCH LM Test: 0.295000(0.591332)				

The ECT represents the speed of adjustment between the short and long run. Its coefficient which is negative and significant is what is expected if there is co-integration between the dependent and the explanatory variables. The magnitude of this coefficient implies that about 10 percent of any disequilibrium between economic growth and the explanatory variables is corrected within one period (a year). Thus, in the long run all the variables are statistically significant. This final ECT is dynamically stable as shown in Fig 1.

Fig 1: Stability Test



However, in the short run none of the explanatory variables is statistically significant except lag 1 of the dependent variables. What this means is that changes in any of the explanatory variables have little or no impact on economic development in the short run but in the long run, this is inevitable since the ECT that captures long run component is statistically significant. Also, only government expenditure on health is positively correlated with economic growth while the impact of capacity building, expenditure on education and a dummy of entrepreneurship are negative. Finally, the stability test reveals that the CUSUM plots lies within the 5% critical boundary which shows that our model is stable.

## 5. Conclusion and Recommendation

The study focuses on the impact of human capital and entrepreneurship on economic development in Nigeria from 1980 to 2013 and we argued that development in the economy over the last three decades has not been impressive. The econometric approach of the study encompasses test for stationarity and ARDL model. And whilst real GDP was made dependent variable, human capital development, government expenditure on education, expenditure on health and a dummy of entrepreneurship were made explanatory variables.

It was discovered that only expenditure on health positively affect economic growth in the short run while other variable exert negative influence, this is very disturbing. More worrisome is the negative impact of human capital development, expenditure on education

and level of entrepreneurship that are significant in the long run. This is not surprising because public expenditure on education has been grossly inadequate which have in turn hampered school enrolments at various level of education. The result is low human capital development whose contribution to economic growth is negative. That the contribution of entrepreneurship to economic growth is negative is also not surprising since many small and medium enterprises in Nigeria find it difficult to survive due to severe infrastructural decades. It is recommended therefore that allocation to the educational sector should be increased without further delay. And while effort should be made to increase school enrolment, infrastructural deficit in Nigeria need urgent attention to encourage entrepreneurial spirit.

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## THE EFFECT OF TRADE OPENNESS ON ECONOMIC GROWTH IN NIGERIA

Gylych JELILOV Ph.D.

Nigerian Turkish Nile University, Department of Economics

Email: [jelilov@ntnu.edu.ng](mailto:jelilov@ntnu.edu.ng)

Maryam Musa SADA (Mrs)

Nigerian Turkish Nile University, Department of Economics

Email: [sada\\_maryam@yahoo.com](mailto:sada_maryam@yahoo.com)

Abdurahman ISIK Ph.D.

Nigerian Turkish Nile University, Department of Economics

Email: [a.isik@ntnu.edu.ng](mailto:a.isik@ntnu.edu.ng)

### Abstract

The aim of this study is to analyse the relationship between trade openness and economic growth in Nigeria from 1981-2014; the model was augmented by adding financial development. The methodology used in this paper are unit root, cointegration and granger causality test. The stationarity and integration of the data was done using the Augmented Dickey-Fuller (ADF) and Phillip-Perron (PP) test; the test conducted showed that the variables are not stationary. The Johansen test was used to test for cointegration and the result showed that cointegration exists. Finally, the granger causality test was carried out, and the result showed that there is a bilateral relationship between all variables; except the relationship between import and economic growth, import and domestic credit, import and export which have a unilateral relationship.

**Key words:** economic growth, financial development, trade, Nigeria, developing country.

Jel codes: F63, G21, O11, C12, C01

### INTRODUCTION

There has been a lot of controversies on the relationship between trade openness on economic growth; these controversies also takes place in both empirical and theoretical levels. The neoclassical model on exogenous growth states that trade policy changes affects only product specialization pattern but does not affect the long term economic growth rate. In contrast, the new growth theory stated that trade policy affect the long run economic growth rate. However, trade openness level of impact on growth in the long run has varying patterns when trading partner vary structurally in terms of innovation capabilities is ambiguous(MUSILA & YIHEVIS, 2015). A model was created by Grossman and Helpman (GROSSMAN & HELPMAN, 1991) that showed that trade between a less developed and a developed nation can improve long term growth rate of less developed countries. While Stokey(STOKEY, 1991) and Young (YOUNG, 1991) developed models that showed trade between a developed and a less developed country (LDC) reduces the level of long run growth for the LDC.

There has been a lot of arguments on the importance of trade openness and financial development among the variables used in economic literature and analysis; these variables also have a strong correlation with growth (SACHS & ANDREW, 1995). Poor countries face financial constraints which prevents them from taking full advantage of the technology transfer which is one of the reasons why some countries deviate from the world production frontier growth rate (AGHION, BURGEESS, REDDING, & ZILIBOTTI, 2005). Poor countries get trapped in the vicious circle of poverty due to their under developed financial systems. When there is poor financial system development, a country is likely to face poor economic performance and vice versa (FUNG, 2009). However, countries with well-developed financial system have the tendency of faster growth, hence, finance does not just promote growth but it also promotes the poor economies which helps the poor countries to gradually meet up with the rest of the economy (BALTAGI, PANICOS, & SIONG, 2009)

## LITERATURE REVIEW

Financial markets play a great role which has influence on economic growth (LEVINE, 1997); this helps in the reduction of idiosyncratic and liquidity risks, improve allocation of resources to a more productive usages, increase savings, increase corporate control and monitoring and improve specialization. Real sectors need financial supply of these services for a deeper financial system. The issues regarding financial development and how it can influence economic growth has received a lot of attention and theoretical foundation which recognize two different, but complementary channels, also, it is debated that allocative and cumulative channels can influence economic growth. Many channels stresses the positive effects of finance on human and capital accumulation on economic growth (e.g(GREGORIO & SE-JIK, 2000)). Distribution channel concentrates on the increasing efficiency on allocation of resources which is due to financial extension which consequently boosts growth (e.g. (KING & ROSS, 1993).Others, such as, Harrison (HARRISON, 1996) and Vamvakidis (VAMVAKIDIS, 2002), have also shown that trade liberalization has a positive effect on economic growth. Specialization can also be increased through trade liberalization which in turn will increase productivity growth and realize economies of trade. A lot of empirical studies have been done since the 1990's which stated that open economies face a lot of competition which leads to an increase in productivity. In summary, most of the studies done showed that financial development has a positive impact on economic growth, even though there need to be more research done to give more details on the heterogeneity across countries.

Another research done showed that Africa has the capabilities of rapid economic growth like other developing countries around the world. Regression results show that the lagging growth of the African economy is due to natural factors such as, climate, limitation on access to sea, abundance of natural resources. From the results, it also shows that policies like government saving, trade liberalization, and "market-supporting institutions" have great impact on the level of economic growth (SACHS & WARNER, 1997). It was also observed that variations in demographic factors and life expectancies have some effect on the sluggish growth rate of African countries compared to other developing countries. From the research conducted, it was found that there are certain variables that do not have effect on economic growth, such as, neighborhood. It was also found out that the Sub-Saharan Africa does not have any



unmeasured growth constraint or that the residuals of the regression analysis are considerably higher in Africa compared to other countries.

The kind of relationship that exists between trade openness and growth has been a subject of debate among economists for a long period of time. The debate takes place at the empirical and theoretical levels. Looking at the exogenous growth model, any change in trade policy will only have an effect on the path of product specialization, but it does not affect the long term ratio of economic growth. On the contrary, the new theory of growth shows that trade policy changes can stimulate rates of economic growth in the long-run. However, difference in trade partners innovation capabilities can affect the level of impact of trade openness on long-term rate of economic growth. A model was created by Helpman and Grossman (GROSSMAN & HELPMAN, 1991) which showed that trade between a less developed country and a developed country can increase the level of growth in the long run, under certain conditions. While Stoke(STOKEY, 1991) and Young(YOUNG, 1991) came up with models that showed trade between a less developed and a developed country can decrease long run growth in less developed country. On the contrary, another model was created that showed that trade between a less developed and a developed country will lead to a decrease economic growth of the developed country in the long run.

There are a lot of mixed results on effect of trade openness on economic growth. Some regressions find a positive effect (DOLLAR & AART, 2003), (FRANKEL & DAVID, 1999), (DOLLAR & AART, Trade, growth, and poverty, 2001) while some find negative effects (IRWIN, 2002), (CLEMENS & JEFFREY, 2001). However, thorough research on individual country is a better way of understanding the impact of trade openness on economic growth in the long run.

## **METHODOLOGY**

This study analysis the impact of trade openness, financial development on economic growth in Nigeria using annual data from 1960-2013. Financial development is used to augment the model. The framework used is the granger causality test in vector Auto regression (VAR) to test the relationship among financial development, trade openness and economic growth in Nigeria. Firstly, data used will be described, followed by technique for analyzing stationarity of underlying time series is described. Then, a description of Johansen co-integration test, followed by,Granger-causality methodology in vector auto regression (VAR) and the concluding section will be notes on consistency of the estimated vector auto regression.

### **Overview of the variables (Data)**

Over the years, there has been a couple of research done to show that there is a relationship between financial development and economic growth; there is a two-way effect or economic growth leads to financial development. Some research show that there is independent causation between economic growth and financial development.

Proving the relationship between financial development and growth consists of two problems.



1. It is required to take up a measure for financial development.
2. A lot of econometrics articles regarding this issue don't use a theoretical model.

Three variable will be used to proxy financial development; these variables are:-

1. Private credit (PC):- this is a percentage of the GDP
2. DOMESTIC CREDIT(DC):- this is also as a percentage of the GDP
3. Broad money(BM):- as a percentage of GDP

Trade openness (TO) will be measured using import and export (% Of GDP) and the rate of economic growth (EG) will be measured using the sum of import and export.

### Model Specification

The main model that shows the relationship among trade openness, financial development and economic growth in Nigeria can be identified as:-

$$EG = F(FD, TO) \text{-----(1)}$$

which can also be presented as :-

$$EG_t = \alpha_0 + \alpha_1 FD_t + \alpha_2 EG_t + \varepsilon_t \text{-----(2)}$$

Where:

- FD which stands for financial development is represented by, Money Supply (M2), Private Credit (PC) and, Direct Credit (DC)
- GR which stands for Growth rate of GDP
- TO stands for Trade Openness; and
- $\alpha_0$  is the constant term,
- 't' is the time trend, and
- 'ε' is the random error term. Been that financial development isproxied by three variables the three(3) variables are separated from growth rate and trade openness when determining the Granger causality to create three models:

$$DC_t = \alpha_0 + \alpha_1 EG_t + \alpha_2 TO_t + \varepsilon_{t1} \text{----- (3.1)}$$

$$PC_t = \beta_0 + \beta_1 EG_t + \beta_2 TO_t + \varepsilon_{t2} \text{----- (3.2)}$$

$$M_t = \delta_0 + \delta_1 EG_t + \delta_2 TO_t + \varepsilon_{t3} \text{----- (3.3)}$$

$\alpha_0, \beta_0$  and  $\delta_0$  are constant terms.

### Estimation Technique

#### Unit Root Test

The first step comprises of testing integration of individual series considered. A lot of researchers created a couple of procedures to test the order of integration. Some of the popular tests are Augmented Dickey-Fuller (ADF) by Dickey and Fuller (1979, 1981), and the Phillip-Perron (PP) by Phillips and Perron(1988). The general formula for Augmented Dickey-Fuller (ADF) test is estimated by the following regression;

$$\Delta y_t = \alpha_0 + \alpha_1 y_{t-1} + \sum_{i=1}^n \alpha_i \Delta y_{t-i} + \varepsilon_t \text{-----(4)}$$

$$\Delta y_t = \alpha_0 + \alpha_1 y_{t-1} + \sum_{i=1}^n \alpha_i \Delta y_{t-i} + \delta t + \varepsilon_t \text{-----(5)}$$

- Y stands for time series.

- t stands for linear time trend.
- Δ stands for the first difference operator.
- α0 is a constant.
- n stands for the optimum number of lags in the dependent variable 9
- e stands for the random error term

equation one (1) includes just drift while equation two (2) includes both drift and linear time trend pp.

$$\Delta y_t = \alpha_0 + \alpha y_{t-1} + e_t \text{-----} (6)$$

### 3.3.2 Co-integration test

Secondly, another test will be conducted to test the presence or absence of cointegration between series of same order of integration through creation of a cointegration equation. The basic idea behind cointegration is that if, in the long-run, two or more series move closely together, even though the series themselves are trended, the difference between them is constant. It is possible to regard these series as defining a long-run equilibrium relationship, as the difference between them is stationary (Hall and Henry, 1989). A lack of cointegration suggests that such variables have no long-run relationship: in principal they can wander arbitrarily far away from each other (Dickey et. al., 1991). We employ the maximum-likelihood test procedure established by Johansen and Juselius (1990) and Johansen (1991). Specifically, if  $Y_t$  is a vector of n stochastic variables, then there exists a p-lag vector auto regression with Gaussian errors of the following form: Johansen’s methodology takes its starting point in the Vector Auto regression (VAR) of order P given by

$$Y_t = \mu + \Delta_1 y_{t-1} + \dots + \Delta_p y_{t-p} + \epsilon_t \text{-----} (7)$$

To find the quantity of co-integration vectors, Juselius (1990) recommended two statistic test, firstly, the trace test ( $\lambda$  trace) is conducted. It examines the null hypothesis which states that the number of distinct cointegrating vector is less than or equal to q contrary to a general unrestricted alternatives  $q = r$ . the test is as follows:

$$\lambda \text{ trace } (r) = - T \sum_{i=r+1}^n \ln (1 - \lambda_i^T) \text{-----} (8)$$

- T is the quantity of usable observations,
- $\lambda_{1,s}$  are the projected eigenvalue in the matrix.

### Granger-causality Test

The next test conducted after the cointegration test, is the test for the causalty among tade openness, financial development and economic growth. If the test shows that the variables are cointegrated, error correction term (ECT) should be included because it is vital (Granger, 1988). But if it shows that the variables are not cointegrated a multivariate equation will be used.

### MODEL 1

$$DC_t = \sum \alpha_{11t} DC_{t-1} + \sum \alpha_{12t} TO_{t-1} + \sum \alpha_{13t} GR_{T-1} + \epsilon_{11t} \text{-----} (9.1)$$

$$TO_t = \sum \alpha_{21t} DC_{t-1} + \sum \alpha_{22t} TO_{t-1} + \sum \alpha_{23t} GR_{T-1} + \epsilon_{21t} \text{-----} (9.2)$$

$$GR_t = \sum \alpha_{31t} DC_{t-1} + \sum \alpha_{32t} TO_{t-1} + \sum \alpha_{33t} GR_{T-1} + \epsilon_{31t} \text{-----}(9.3)$$

**MODEL 2**

$$PC_t = \sum \beta_{11t} PC_{t-1} + \sum \beta_{12t} TO_{t-1} + \sum \beta_{13t} GR_{T-1} + \epsilon_{11t} \text{-----}(10.1)$$

$$TO_t = \sum \beta_{21t} PC_{t-1} + \sum \beta_{22t} TO_{t-1} + \sum \beta_{23t} GR_{T-1} + \epsilon_{21t} \text{-----}(10.2)$$

$$GR_t = \sum \beta_{31t} PC_{t-1} + \sum \beta_{32t} TO_{t-1} + \sum \beta_{33t} GR_{T-1} + \epsilon_{31t} \text{-----}(10.3)$$

**MODEL 3**

$$M_t = \sum \delta_{11t} M_{t-1} + \sum \delta_{12t} TO_{t-1} + \sum \delta_{13t} GR_{T-1} + \epsilon_{11t} \text{-----}(11.1)$$

$$TO_t = \sum \delta_{21t} M_{t-1} + \sum \delta_{22t} TO_{t-1} + \sum \delta_{23t} GR_{T-1} + \epsilon_{21t} \text{-----}(11.2)$$

$$GR_t = \sum \delta_{31t} M_{t-1} + \sum \delta_{32t} TO_{t-1} + \sum \delta_{33t} GR_{T-1} + \epsilon_{31t} \text{-----}(11.3)$$

- DC<sub>t</sub> stands for Direct Credit as a proxy financial development
- PC<sub>t</sub> stands for Private Credit as a proxy for financial development
- M<sub>t</sub> stands for broad Money Supply also used as a proxy for financial development
- TO<sub>t</sub> stands for Trade Openness
- GR<sub>t</sub> stands for Growth Rate of GDP

1. Rejecting the null hypothesis ( $\alpha_{11} = \alpha_{22} = \alpha_{33}$ ) show that direct credit do granger cause economic growth and trade openness and vice versa.
2. Rejecting the null hypothesis ( $\beta_{11} = \beta_{22} = \beta_{33}$ ) in equation (10.1, 10.2, 10.3) show that private credit do granger cause economic growth and trade openness and vice versa.
3. Rejecting the null hypothesis ( $\delta_{31} = \delta_{32} = \delta_{33}$ ) show that money supply do cause economic growth and trade openness and vice versa.

The tests conducted help us show the relationship of no causality, unidirectional causality or feedback causality among the variables used to conduct the test.

**EMPIRICAL RESULTS**

**Unit root**

Firstly, a test is conducted to know if the variables used are stationary and to also know their order of integration. Two tests (Augmented Dickey Fuller and Phillips- Perron) were used to determine if unit root exists in the time series data. The result of the test is available in table 1.

**Table 1**

variables	ADF	PP
EG	-2.197048 (-3.646342)	-2.019646 (-3.646342)
PC	-2.646561 (-3.646342)	-2.402949 (-3.646342)
DC	-2.101623 (-3.646342)	-1.882698 (-3.646342)
BM	-3.240686 (-3.653730)	-2.284509 (-3.646342)
EX	-2.688537 (-3.646342)	-2.569210 (-3.646342)
IM	-2.776623 (-3.646342)	-2.837644 (-3.646342)

\* Significance at 1% level.

\*Figures within parenthesis indicate critical values.

\*Mackinnon (1991) critical value for rejection of hypothesis of unit root applied.

The result of the augmented dickey fuller (ADF) and the Phillips-Perron (PP) test indicates that all the variables are not stationary. The result can be seen by comparing the values that has been observed from the ADF and PP test and the critical values of the ADF and PP test at all the significance levels (1%, 5% and 10%). From the results, showing evidence of non stationarity; the null hypothesis should be accepted. Therefore, unit root exists. Result from table 1 provides strong evidence of non stationarity. Therefore, there is presence of unit root on all the variables.

**Cointegration Results**

When the stationarity of the variables have been confirmed, the cointegration test is been conducted among the variables. If the result show that there is cointegration, it means that economic growth, financial development and trade openness share a common trend and equilibrium in the long-run (suggested theoretically).

The Johansen and Juselius test was used to conduct the cointegration test. From the results shown in table 2 and 3 both trace statistic and Eigenvalue statistic indicate that there is one (1) cointegrating equation at the 5% level of significance. Which means that there is a relationship among economic growth, financial development and trade openness.

**TABLE 2**  
Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.719159	107.8442	95.75366	0.0057
At most 1	0.552646	67.20533	69.81889	0.0794
At most 2	0.490730	41.46436	47.85613	0.1743
At most 3	0.303927	19.87147	29.79707	0.4316
At most 4	0.181955	8.277852	15.49471	0.4362
At most 5	0.056204	1.851042	3.841466	0.1737

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

**TABLE 3**  
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.719159	40.63890	40.07757	0.0432

At most 1	0.552646	25.74096	33.87687	0.3368
At most 2	0.490730	21.59289	27.58434	0.2420
At most 3	0.303927	11.59362	21.13162	0.5881
At most 4	0.181955	6.426810	14.26460	0.5591
At most 5	0.056204	1.851042	3.841466	0.1737

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

### Granger Causality Test

After the cointegration test which showed that there is cointegration among the variables, economic growth, trade openness and financial development, a granger causality test was carried out. The results are made available in table 4.

**TABLE 4**

Pairwise Granger Causality Tests

Date: 01/25/16 Time: 19:33

Sample: 1981 2014

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
PC does not Granger Cause EG	32	1.04814	0.3644
EG does not Granger Cause PC		0.17386	0.8414
DC does not Granger Cause EG	32	2.67079	0.0874
EG does not Granger Cause PC		0.86059	0.4342
BM does not Granger Cause EG	32	1.99771	0.1552
EG does not Granger Cause BM		0.41062	0.6673
EX does not Granger Cause EG	32	2.81417	0.0776
EG does not Granger Cause EX		0.82935	0.4471
IM does not Granger Cause EG	32	2.88990	0.0729
EG does not Granger Cause IM		8.38476	0.0015
DC does not Granger Cause PC	32	1.55753	0.2290
PC does not Granger Cause DC		0.26876	0.7663
BM does not Granger Cause PC	32	0.96059	0.3954
PC does not Granger Cause BM		0.06260	0.9395
EX does not Granger Cause PC	32	0.97046	0.3917
PC does not Granger Cause EX		0.65977	0.5251

IM does not Granger Cause PC	32	0.19161	0.8267
PC does not Granger Cause IM		0.80357	0.4581
BM does not Granger Cause DC	32	0.23680	0.7908
DC does not Granger Cause BM		0.30491	0.7397
EX does not Granger Cause DC	32	1.70886	0.2001
DC does not Granger Cause EX		1.16915	0.3259
IM does not Granger Cause DC	32	0.66444	0.5228
DC does not Granger Cause IM		4.60352	0.0190
EX does not Granger Cause BM	32	1.41255	0.2609
BM does not Granger Cause EX		1.42695	0.2576
IM does not Granger Cause BM	32	0.63960	0.5353
BM does not Granger Cause IM		2.01006	0.1535
IM does not Granger Cause EX	32	0.81595	0.4528
EX does not Granger Cause IM		8.13083	0.0017

From the results of the granger causality test, it can be seen that the null hypothesis of all the relationships of the variables have been rejected while the alternate hypothesis have been accepted (there is a causal relationship between variables) and have a bidirectional relationship except two relationships.

IM granger cause EG but EG does not granger cause IM which makes the variables have a unilateral relationship

IM granger cause DC but DC does not granger cause IM which makes the variables have a unilateral relationship also.

IM granger cause EX but EX does not granger cause IM which also makes the variables have a unilateral relationship.

\*All other relationships for the granger causality test have a bidirectional relationship

## CONCLUSION

This study was conducted to examine the causal relationship among economic growth, trad openness and financial development using data collected from World Bank, World Development Indicators and EconStatsTM from 1981-2014. The methodology used to get the information are unit root, cointegration, and granger causality test. Stationality was tested using Augmented Dickey-Fuller(ADF) and Phillip-Perron (PP) test. The result showed that the variables were non-stationary. Then we used the Johansel multivariate model to check for

cointegration: and the result showed that there is cointegration which means there is long-run relationship among variables. Finally, the granger causality test was conducted.

The granger causality test show that financial development and trade openness have a causal impact on economic growth.

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## EXCHANGE RATE AND ECONOMIC GROWTH IN ECONOMIC COMMUNITY OF WEST AFRICAN STATES (ECOWAS)

*Gylych JELILOV Ph.D.*

*Nigerian Turkish Nile University, Department of Economics*

*Email: [jelilov@ntnu.edu.ng](mailto:jelilov@ntnu.edu.ng)*

*Abdullahi Ahmad JIBRIN*

*Nigerian Turkish Nile University, Department of Economics*

*Email: [jb\\_ahmadnad@yahoo.co.uk](mailto:jb_ahmadnad@yahoo.co.uk)*

### **Abstract**

*The aim of the study is to find the empirical analyses of the impact of exchange rate on gross domestic product and other macroeconomic aggregates in ECOWAS. The study covered the period 1990 to 2014 so as to establish the relationships between Real GDP as an endogenous variable, against some exogenous variable, that is exchange rate, interest and inflation. Classical Linear Regression model (CLRM) was used, where we ran a regression analysis for ten (10) countries, in totality the analysis indicated how imperative significant exchange is in determining the gross output (GDP) in four (4) countries, inflation is only significant for three (3) countries while interest rate is only significant in one country.*

**Key Words:** *Exchange rate, Gross domestic product, Inflation, money supply, Interest rate, Classical Linear Regression model (CLRM)*

**JEL CODE:** C31, E10, E31, E43, F31,

### **1. INTRODUCTION**

Exchange rate is the price of one country's currency expressed in terms of some other currency. It determines the relative prices of domestic and foreign goods, as well as the strength of external sector participation in the international trade (Adeniran, 2014). According to (Jhingan M.L., 2009) Foreign exchange rate or exchange rate is the rate at which one currency is exchanged for another, he went further to expatiate that it is the price of one currency in terms of another currency. Exchange rate is among one of the macroeconomics indicator that has effect on the range of other macroeconomics aggregates, the most important being the GDP, inflation rate, money supply and interest rate.

Cornell Presented a test of the joint hypothesis establishing a relationship between money supply announcements, and how it affect the real interest rate, and that changes in the of real interest rate affect the exchange rate in the short run. He opined that the monetary model of the balance of payments implies that changes in the dollar price of foreign exchange will be positively correlated with announced of money supply innovations (Cornell, 1982). In response to an unexpected increase in the money supply, for example, the expected rate of inflation will rise, driving up nominal rates. The increase in nominal rates reduces the

demand for money causing the US price level to rise and the dollar to depreciate (or the price of foreign exchange to rise).

## 2.0 LITERATURE REVIEW

Exchange rate, interest rate and other macroeconomics indicators remain an important focal point of discourse in the International finance as well as in developing nations, which is prerequisite for economic development (Adeniran, 2014). Volatility of exchange rate gave rise to efforts by the economist focusing their attentions in monitoring exchange rate and how it affects the economies. As such, different policies of exchange policies have been adopted (i.e. from fixed exchange rate to floating exchange rate) depending on which of the regimes favoured the situation prevailing in an economy for monitoring the purchasing power parity (PPP) and indeed the total output. According to Rodrik; overvaluation of exchange real rate remained the centre of attraction and it was strongly admonished against overvaluation (Rodrik, 2008), Rapetti also quoted Rodrik, in his summaries he states that decrease in overvaluation of real exchange rate boosts economic growth, but all these facts are established on the developing countries only (Rapetti M. et al, 2012). Ghura, in his submissions' he also mentioned foreign credit among factors that gave rise to slow growth in sub-Saharan African (Ghura David, 1991).

Taylor sees exchange rate as an important part of monetary policy which serve as transmission mechanism in policy-evaluation models, exchange rate serves as arbitrage equation relating the interest rate in one country to the interest rates in other countries through the expected rate of appreciation of the exchange rate, The exchange rate also affects the terms of trade and thus the flow of exports and imports, although, Taylor was pessimistic on difficulties to model exchange rate effect, but he is equally optimistic about how changes in the exchange rate affect the price of foreign goods sold in another country and are then passed through to domestic prices (Taylor, 2001), although, this has been substantiated in the work of (Katz 1973).

The developing economies relied on import, and they need this exchange for transaction to make up for their domestic demand for goods and services, since all most all the developing economies are importing countries, there is always the tendencies of having imported inflation resulting from these transactions, which in turn has effect on the overall economy. (Katz, 1973) In his studies to examine imported inflation, he established that the inflation experienced by the OECD countries in 1969-1970 was attributed to imported inflation from North America i.e. US and Canada, because they accounted for about 50% of the aggregate output of these member countries.

However, considering the historical antecedences of some faster growing developing countries in other regions such as Asia that have faced similar internal and external conditions as Sub-Saharan Africa, and better performance in Africa in earlier periods with similar external shocks have led observers to focus on the contribution of domestic policy to economic problems in the region SSA (Daneshwar & Thomas, 1992).

The major components of economic reforms of most Sub-Saharan African countries in the 1980s are geared towards Exchange rate liberalization; these countries have experienced high volatile exchange rates as a consequence of the nature of their monetary systems. According to (Adeolu & Godwin, 2013) they cited that there is a remarkable difference in the behaviour of their real exchange rates. Real exchange rates in the CFA countries generally follow a downward trend (appreciation) while the non-CFA countries where they follow an upward trend (depreciation). Other issues inherent with the developing economy is undervaluation, with reference to the studies of (Martín, Peter, & Arslan, 2012) on the relationship between real exchange rates (RERs) and economic growth, an increase in undervaluation boosts economic growth just as impressively as a decrease in overvaluation. But this relationship holds only for developing countries, also (Rodrik, 2008) and (Eichengreen, 2007), in their empirical analyses they established the facts that the relationship between undervaluation and economic growth is only positive with developing countries but it disappears when the sample is restricted to richer countries, and it gets stronger the poorer the country. The Sub-Saharan Africa is among the regions of the world in which most countries within the region have experienced slow or negative growth in real income in one time or the other. Many factors may have contributed to this slow growth, including human and non-human, such as; Drought, adverse terms of trade and limited access to foreign credit and aid are among the external factors that are frequently cited as contributing factor (Daneshwar & Thomas, 1992), the other fact not always cited is the internal factor which is the political will by the leaders of this region to tackle the major problem head-on and with unstable political regimes gave birth to the slow growth experienced in the region. Which means control measure can be put in place to ameliorate some of these problems (Sissoko & Dibooglu, 2006 ).

### **2.1. The Economic Community of West African States (ECOWAS)**

The Sub-Saharan Africa (SSA) countries have adopted different strategies in terms of exchange rate policy. In the early 1960s, the former British colonies have dumped their currency boards to create their own currencies while the former French colonies decided to form a monetary union named "CFA franc zone". These situations augment to the proliferation of non-convertible currencies, which was seen as an impediment to trade, integration and economic development. In order avoid these impediments and promote regional integration and development by the countries within the west part of the Sub-Saharan Africa, the Economic Community of West African States (ECOWAS) was created on 28 May 1975, with the signing of the treaty of Lagos by the Heads of States of West African countries in Lagos (Nigeria). The objective of the organisation is the enhancement and the development of its members through economic and political cooperation. Amongst the progress being achieved since the formation of the organisation are: the establishment of free trade area, intra-regional passenger transport, infrastructural and mechanism for conflict resolution has been initiated, others are the issues of the community's income which has been solved, and a functional court of justice which has been institutionalized (Cernicky, 2007), (Central Bank of Nigeria, 2016), (Issiaka & Blaise, 2013) and (Adeolu & Godwin, 2013).

ECOWAS is considered as one of the pillars of the African Economic Community. The organization was founded in order to achieve "collective self-reliance" for its member states

by creating a single large trading bloc through an economic and trading union. The organisation comprises of two institutional units that engage in policies implementation, the ECOWAS Secretariat and the ECOWAS Bank for Investment and Development. Other monetary institutions associated with ECOWAS include the West African Monetary Agency (WAMA), West African Economic and Monetary Union (WAEMU), and West African Monetary Zone (WAMZ), (Central Bank of Nigeria, 2016).

The West African Monetary Agency (WAMA) was created by ECOWAS in 1996 after its transformation from the West African Clearing House (WACH). As WACH, it promoted multilateral payment facility within West African sub-region. In addition to its functions of routing and clearing trade transactions and services, the Agency is charged with monitoring, coordinating and implementing the ECOWAS Monetary Cooperation Programme (EMCP) in order to hasten the creation of the ECOWAS single currency. The major characteristics of the ECOWAS monetary union have been defined in this program, that is: management and pooling of all reserves, common monetary policy and common convertible currency, an agreement on the convertibility guarantee, among others. So, the only disparity between the ECO which happen to be the propose currency for the non-CFA countries and the CFA franc is the indecisiveness about the tenable currency.

Although, little or no attention was given to EMCP, until the successful launch of the Euro in 1999 that has brought renewed attention in its achievement. To give new momentum to the program, the leadership of ECOWAS decided in December 2000 to develop another strategy that was christened “Accelerated Integration”. This strategy had two phases: the conception in 2003 of a second monetary union WAMZ whose common currency will be called “ECO”, and the merging of the latter with the WAEMU in 2005. In this perspective, first-order and second-order convergence criteria have been defined. The first-order criteria, whose achievements are decisive for the creation of the future monetary union, are: single digit inflation rate; budget deficit lower than 4%; external reserves greater than 3 months of imports and central bank financing of government budget deficit lower than 10% of previous year's tax revenue. With reference to second-order criteria, they focus on the monetary and exchange rate policies management (positive interest rate and stable nominal exchange rate), and also on the structure of public accounts (no domestic arrears, tax revenue greater than 20% of GDP, salary mass lower than 35% of tax revenue, and public investment greater than 20% of domestic receipts). (Issiaka & Blaise, 2013)

According to (Issiaka & Blaise, 2013) , West African Monetary Institute (WAMI) has been created for working towards the establishment of conditions for the launch of the ECO. This institute is saddle with the responsibility to carry out the multilateral surveillance of macroeconomic performance, establish the status of the Central Bank of West Africa, and design the structure and policy frameworks of the WAMZ monetary union. The lack of macroeconomic convergence has delayed the schedule. The launch date of the ECO has been postponed from 2003 to 2005 and to 2009. Taking into cognizance the effects of the global economic crisis on macroeconomic convergence of the members' economies, WAMZ countries have finally decided to reschedule the launching of the ECO after the creation of the Central Bank in Ghana after which the merger of the Eco and West African CFA franc was planned to be achieved by 2020.

The West African Economic and Monetary Union (WAEMU), also known as UEMOA in French, that is; (union économique et monétaire ouest-africaine) is an organization of eight West African states. It was established to promote economic integration among countries that share the CFA franc as a common currency. Among its achievements, the WAEMU has successfully implemented macro-economic convergence criteria and an effective surveillance mechanism. It has adopted a customs union and common external tariff and has combined indirect taxation regulations, in addition to initiating regional structural and sectoral policies. ECOWAS and UEMOA have developed a common plan of action on trade liberalization and macroeconomic policy convergence. The organizations have also agreed on common rules of origin to enhance trade, and ECOWAS has agreed to adopt WAEMU customs declaration forms and compensation mechanisms.

The West African Monetary Zone (WAMZ) is a group of six countries within ECOWAS formed in 2000. Member countries are: The Gambia, Ghana, Guinea, Liberia, Nigeria and Sierra Leone. The group has plan of introducing a common currency, the Eco, by the year 2015. The WAMZ is largely dominated by Nigeria, reflecting its status as Africa's largest oil producer and most populous country. All the members of group are English-speaking countries, except Guinea, which is Francophone. The WAMZ is making effort to establish a strong stable currency on the side of the CFA franc, whose exchange rate is tied to the Euro and guaranteed by the French Treasury. The ultimate goal is for the CFA franc and Eco to merge, giving all of West Africa a single, stable currency. The launch of the new currency is being developed by the West African Monetary Institute based in Accra, Ghana. However, several of the WAMZ's countries are facing challenges of weak currencies and budget deficits, including inflation.

### **3.0 METHODOLOGY**

#### **3.1 The Model**

The model use in this research work is a simple regression model, which is a technique use for modelling and analyzing number of variables, regression model centred on the relationship between one dependent variable and one or more independent variables (or predictors) (Koutsoyianis, 2006) (Gujarati, 2003). The data for the research work is obtained from IMF Website, World Bank, and ECOMAG. Variations in economic activities of ECOWAS economy caused significant fluctuations in macroeconomic indicators, the demand and the supply pattern not only affects the exchange rates, but also in the price levels, interest and gross output.

#### **3.2 Classical Regression model of Real GDP, Exchange Rate, Inflation Rate and Interest Rates**

The aim of the models used is to establish the linear relationship existing between Real gdp ( $Rgdpt_t$ ), as a dependent variable and other independent variables (Explanatory variable) i.e. exchange rate ( $exch_t$ ), interest rates ( $Int_t$ ) and inflation rate ( $Inf_t$ ), in order to determine the causal relationships between these dependent and explanatory variables. It is worthy to note

that the relationship is a one directional relationship that is from the explanatory variable to the dependent variable. The model is given as follows;

$$Rgdp_t = \alpha_0 + \alpha_1 Inf_t - \alpha_2 Int_t + \alpha_3 exch_t + \varepsilon_{1,t} \dots \dots \dots (1.0)$$

### Definition of Variables

$Rgdp_t$  = Real gdp in (dollar \$)

$Inf_t$  = inflation rate (Consumer Price Index)

$Int_t$  = Interest rates

$exch_t$  = Real exchange rate

Gross domestic product represents the total aggregate output of given economy. GDP is measured as Nominal GDP (GDP at Current Price) or Real GDP (GDP at Constant Price). The Real GDP is the Nominal GDP adjusted for inflation. GDP in real terms measure the output in terms of the volume of goods and services produced, while the Nominal GDP, on the other hand, measure the size of an economy, which is the value of output, as a result of increase in quantity of output, higher price level or both (Tombofa & Obudah, 2014).

According to (Md. Gazi, 2009) he opined that Interest rate is one of the important macroeconomic variables, that is directly related to economic growth, in its general term, Interest rate is measured as the cost of capital, that is the price paid for the use of money for a period of time. Interest rate has an inverse relation with gdp, when interest rate decreases it gives room for investment in business, leading to increase in gdp. So also when the rate of interest is high it discourages borrowing for investment and this will lead to decrease in output of investment thereby reducing the gdp. Therefore Interest rate has a negative relationship with gdp.

The exchange rate is determined independent of economic growth rate. The exchange rate can have an influence on economic growth vice versa. According to (Dornbusch, 2013), exchange rate is identified as a critical channel for the transmission of monetary policy to aggregate demand for domestic output. A strong exchange rate is often considered to be a sign of economic strength. In the long-term, exchange rate appreciation tends to occur in countries with low inflation, thereby improving competitiveness and a strong economic performance. While in short-term, a strong exchange rate could be due to a variety of other factors which could be misleading to the overall economic situation because it might be driven by speculation rather than long-term economic effect. A strong exchange rate have tendency of depressing economic growth because it makes exports to be more costly i.e. less demand for exported goods and Imports cheaper, therefore more demand for imported goods and invariably less demand for domestically produced goods. These will further reduce the aggregate demand. Another characteristic inherent with exchange rate is devaluation; devaluation can be a reason for economic growth, it is more advantageous to export base economy. A lower exchange rate makes exports cheaper and increases demand for domestic goods. This can provide additional demand which increases economic growth. In the other hand devaluation may gave birth to inflation because it makes imports more expensive.



Although, if demand for exports and imports are relatively elastic, then there should be an increase in economic growth.

Inflation (Consumer Price Index (CPI)) can denote either an increase in the money supply or an increase in price levels. Inflation refers to rise in prices of goods and services with reference to some benchmark. With increase in money supply, this will obviously give rise to higher price levels. The correlation between inflation and gross domestic product (GDP) is a very sensitive one, this can be substantiated in work of (Michael & David, 1999) in their findings, and they observed that inflation is considerably lower in pegged exchange rate regimes than in floating exchange regime, especially if the peg is not always adjusted from time to time. So also is output growth and volatility of exchange rate do not differ significantly across exchange rate regimes. Although, growth in the GDP is imperative, however, excessive GDP growth is always accompanied by inflation. According to (Dornbusch, 2013), monetary expansion has the conventional effect of increasing the level of output in the short run and inducing inflation. An induced inflation as a result of expansion in real output serves to raise price level over time.

#### 4.0 ANALYSIS OF RESULTS

##### 4.1 Classical Linear Regression Model (CLRM)

The Gaussian, standard, or classical linear regression model (CLRM) serve as the keystone and fundamental of most economic theory, multiple regression model is used, that is a model with more than one regressor was adopted in the analyses. Thus, the model is given as follows;

$$\mathbf{Rgdp}_t = \alpha_0 + \alpha_1 \mathbf{Inf}_t - \alpha_2 \mathbf{Int}_t + \alpha_3 \mathbf{exch}_t + \varepsilon_{1,t} \dots \dots \dots (2.0.)$$

Ten (10) west African countries are analysed using the classical linear regression model (CLRM), these countries are; Benin Republic, Burkina Faso, Cape Verde, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, others are Nigeria and Sierra Leone.

##### 4.2 Results

In the analyses some of the variables that is both the endogenous and exogenous variable where lagged, the aim of the lagging some of these variables is to achieve significant result and to avoid auto correlation problems, by making sure that the DW-statistic is within the accepted region, which is approximately 2.

From the result obtained some of the variables estimated from the analyses defied the apriori expectations of the model, this may be coming from the shortcomings of the data used. It is worthy to note that the data used for these analyses had some data gaps which were filled with a simple average to give room for the analyses.

Some of the model negations encountered are for instance Inflation rate, Inflation rate has a positive relationship with GDP in our model, but from the estimated result, Inflation rate in Benin, Burkina Faso, Cape Verde, Gambia, Guinea, Liberia and Sierra Leone were negative. While interest rate has an inverse relationship with GDP but from the estimates, we experienced positive interest rate in Benin, Cape Verde, Guinea Bissau, Liberia, Nigeria and Sierra Leone. So also exchange rate which is positively related to GDP but it was negative in the estimated models of Ghana, Guinea Bissau and Sierra Leone.

In overall, inflation was observed to be significant in explaining the dependent variable in that the real gdp in Benin, Liberia and Sierra Leone, while interest rate was only significant in Ghana. But exchange rate shows a significant relationship in about four countries out of nine, these comprise Benin, Guinea Bissau, Liberia and Nigeria. These results can be verified in the table below;

**Table 1:**

<b>Benin</b>	<b>Burkina Faso</b>
$\text{Lnrgdp} = 8.373468 - 4.75\text{E-}05\text{Inf} + 0.007843\text{Int} + 0.009995\text{exch} - 0.006595\text{Lnrgdp}_1 - 0.011674 \text{Lnrgdp}_2 + \varepsilon$ <p>Std. Error = [0.093390] [1.70E-05] [0.004984] [0.000438] [0.009366] [0.007187] T-Statistic = (89.66128) (-2.791222) (1.573528) (22.79774) (-0.704114) (-1.624427) Prob. Value= (0.0000) (0.0116) (0.1321) (0.0000) (0.4899) (0.1208) <math>R^2 = 97\%</math> <math>\bar{R}^2 = 96\%</math> DW = 1.568105 <math>\approx</math> 2 F Statistics = 126.2668 (0.000000)</p>	$\text{Lnrgdp}_2 = 23.32250 - 0.036670\text{Inf} - 1.530015\text{Int} + 0.003642\text{exch} + 0.730314\text{Lnrgdp}_1 + \varepsilon$ <p>Std. Error = [15.72814] [0.070575] [0.942094] [0.003678] [0.210161] T-Statistic = (1.482852) (-0.519585) (-1.624057) (0.990392) (3.475015) Prob. Value= (0.1537) (0.6091) (0.1200) (0.3338) (0.0024) <math>R^2 = 63\%</math> <math>\bar{R}^2 = 56\%</math> DW = 2.723151 <math>\approx</math> 2.7 F Statistics = 8.769618 (0.000294)</p>
<b>Cape verde</b>	<b>Gambia</b>
$\text{Rgdp}_2 = 0.385457 - 0.213050\text{Inf} + 0.138021\text{Int} + 0.004874\text{exch} + 0.777297\text{Lnrgdp} + \varepsilon$ <p>Std. Error = [4.337360] [-0.127370] [0.448411] [0.036067] [0.234692] T-Statistic = (0.088869) (-1.672686) (0.307800) (0.135129) (3.529005) Prob. Value= (0.9301) (0.1100) (0.7614) (0.8939) (0.0021) <math>R^2 = 60\%</math> <math>\bar{R}^2 = 52\%</math> DW = 1.945302 <math>\approx</math> 2 F Statistics = 7.571828 (0.000695)</p>	$\text{Rgdp}_2 = 1.539436 - 0.104836\text{Inf} - 0.026682\text{Int} + 0.058606\text{exch} + 0.795468\text{Lnrgdp} + \varepsilon$ <p>Std. Error = [4.199347] [-0.976743] [0.162763] [0.046224] [0.234692] T-Statistic = (0.366589) (1.264540) (-0.163934) (1.267851) (3.389406) Prob. Value= (0.7178) (0.3404) (0.8714) (0.2194) (0.0029) <math>R^2 = 55\%</math> <math>\bar{R}^2 = 46\%</math> DW = 2.097469 <math>\approx</math> 2 F Statistics = 6.169446 (0.002108)</p>



<p><b>Ghana</b></p> <p><b>DLNRGDP = 0.053828 + 2.14E-05Inf - 0.001617Int --0.010024exch + ε</b>  Std. Error = [0.008624] [0.000454] [0.015613]  T-Statistic = (-1.915731) (1.264540) (0.135292) (-2.407525) (1.923128) (-0.076944)  Prob. Value= (0.0000) (0.8956) (0.0020) (0.5282)  R<sup>2</sup> = 39 %  R̄<sup>2</sup> = 30 %  DW = 1.868883 ≈ 2  F Statistics = 4.309237 (0.016897)</p>	<p><b>Guinea</b></p> <p><b>Lnrngdp_2 = 1.731101 --0.067760Inf - 0.012166Int + 0.000299exch +0.793126Lnrngdp_1+ ε</b>  Std. Error = [3.091172] [0.051672] [0.114661] [0.000240] [0.234490]  T-Statistic = (0.560015) (--1.311349 (-0.106107) (1.247392) (3.382344)  Prob. Value= (0.5817) (0.2046) (0.9166) (0.2267) (0.0030)  R<sup>2</sup> = 56 %  R̄<sup>2</sup> = 48 %  DW = 2.045330 ≈ 2  F Statistics = 6.550080 (0.001542)</p>
<p><b>Guinea Bissau</b></p> <p><b>DLNRGDP = -1.938261 +0.000568Inf +0.000102Int -0.000243exch +0.219414Lnrngdp_1--0.000276 Lnrngdp_2 + ε</b>  Std. Error = [1.011761] [0.000449] [0.000754] [0.000101] [0.114092]  T-Statistic = (-1.915731) (1.264540) (0.135292) (-2.407525) (1.923128) (-0.076944)  Prob. Value= (0.0714) (0.2222) (0.8939) (0.0270) (0.0704) (0.9395)  R<sup>2</sup> = 36 %  R̄<sup>2</sup> = 22 %  DW = 1.817728 ≈ 2  F Statistics = 2.357027 (0.082121)</p>	<p><b>Liberia</b></p> <p><b>Lnrngdp_2 = 8.382446 -4.61E-05Inf + 0.006761Int + 0.009762exch -0.015590Lnrngdp_1+ ε</b>  Std. Error = [0.096954] [1.79E-05] [0.005188] [0.000440] [0.007544]  T-Statistic = (86.45777) (--2.578104) (1.303184) (22.1852) (-2.066409)  Prob. Value= (0.0000) (0.0180) (0.2073) (0.0000) (0.0520)  R<sup>2</sup> = 96 %  R̄<sup>2</sup> = 95 %  DW = 1.454494 ≈ 2  F Statistics = 141.9511 (0.000000)</p>
<p><b>Nigeria</b></p> <p><b>Lnrngdp_2 = -0.82457 + 0.0526 Inf + 0.0108 Int +0.0243 exch +0.7179 LNRGDP_1 + ε1,</b>  Std. Error = [4.417716] [0.033188] [0.153582] [0.010422] [0.236187]  T-Statistic = (-0.186651) (1.585814) (0.070083) (2.331130) (3.039572)  Prob. Value= (0.8538) (0.1285) (0.9448) (0.0303) (0.0065)  R<sup>2</sup> = 60 %  R̄<sup>2</sup> = 52 %  DW = 1.798387 ≈ 2  F Statistics = 7.690380 (0.000636)</p>	<p><b>Sierra Leone</b></p> <p><b>Lnrngdp_2 = 10.0096 -0.079689Inf + 0.012859Int -4.48E-05exch + ε</b>  Std. Error = [1.479564] [0.015709] [0.041676] [0.000277]  T-Statistic = (6.765229) (-5.072913) (0.308552) (2.331130)  Prob. Value= (0.0000) (0.0001) (0.7607) (0.8732)  R<sup>2</sup> = 75 %  R̄<sup>2</sup> = 71 %  DW = 1.773377 ≈ 2  F Statistics = 21.25748 (0.000001)</p>

## 5.0 CONCLUSION AND POLICY RECOMMENDATIONS

In this research work, ten (10) ECOWAS countries data were analysed using a classical linear regression model to establish the causal relationship between Real GDP as a dependent variable and other independent variable (Inflation rate, interest rate and exchange rate) as an explanatory variable, using annual data from 1990 to 2014. The review is a directional causality between real GDP and, Inflation rate, Interest rate and exchange rate.

The review showed that there is a significant relationship between real GDP and Inflation for three countries analysed i.e. Benin, Liberia and Sierra Leone, and only one country's analysis indicated interest rate having a significant contribution to their GDP that is Ghana, while four countries that is Benin, Guinea Bissau, Liberia and Nigeria indicated that Exchange rate is fundamental to their output in real terms (GDP at constant price or real GDP).

In general, it imperative for effective exchange rate control in the ECOWAS countries, the monetary authority and fiscal policy makers must be well coordinated to prevent unnecessary monetary expansion. Though exchange rate is a determining factor for inflation in simple economic theory, the fact that it influences inflation positively and by implication the total output that is the GDP, it is worthy to sustain exchange rate stability as a prerequisite for stable domestic prices. Diversification of the economy from import to export based economy is fundamental for economic growth and hence development. This can be achieved through efficient and effective regulation of foreign exchange and political stability, which are a very volatile macroeconomic variable. According to (Yaya & Sel, 2006) they are of the opinion that volatility of the exchange rates is higher with unstable political regimes as such, external shocks have every tendency of impacting into macroeconomic stability in SSA.

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## INTEREST RATE VOLATILITY AND ITS EFFECT ON ECONOMIC GROWTH IN NIGERIA: ECMs APPROACH.

Fadimatu I. Waziri (Mrs)

Department of Economics, Nigerian Turkish Nile University, Abuja.

Email: [fadimatuwaziri@gmail.com](mailto:fadimatuwaziri@gmail.com)

Huseyin KALYONCU Ph.D.

Department of International Trade, Melikshah University, Kayseri.

Email: [hkalyoncu@meliksah.edu.tr](mailto:hkalyoncu@meliksah.edu.tr)

### ABSTRACT

*The paper examines the relationship between interest rates and economic growth in Nigeria, using time series analysis and annual data from 1981 - 2013. The study adopted econometrics techniques such as co-integration test, error correction model analysis and granger causality test which confined both the long-run and short-run dynamics of the variables in the model. The result from the empirical analysis revealed the existence of long run relationship between interest rate and economic growth and that interest rate is an important factor that determine or influence economic growth in Nigeria, while the advents of deregulation of interest rate shows a strong connection with the performances of most of the interest rate variables as evident by the bi-directional relationship between them from the result. Therefore, for the economy to continue experiencing increasing economic growth, the government must ensure formulation of polices which is capable of enhancing the performance of those variables which exert positive impact on the gross domestic product and reduce the influence of those factors with negative impact on the economic growth.*

**Key words:** Cointegration, ECM, Causality, Interest rates, financial reforms & economic growth.

Jel Codes: E40, E42, E43, E44

### 1.0 Introduction

Understanding the response of the economy to changes or variations in interest rates is central to the many issues in economic policy. Interest rate is an essential economic price, which can be linked with the cost of capital or from the perspective of opportunity cost of funds. It is the return or yield on equity or opportunity cost of deferring current consumption into the future (Uchendu, 1993). It has fundamental repercussions for the economy by either impacting on the cost of capital or influencing the availability of credit which in turn determine the level of savings as well as that of investment in an economy (Acha & Acha, 2011). It is the rate charged or paid for the use of money.

Interest rates play an important role in our market economy. Richard maintained that, as signals direct the flow of a city's traffic through a complicated grid of intersecting streets and avenues, interest rates channel the flow of funds from savers to borrowers (Richard, 2012). Usually, the funds flow through financial intermediaries such as banks, mutual funds and

insurance companies. It helps in striking balance between the demand for funds by borrowers and the supply of funds from savers by its ever-adjusting level. Hence, changes in the quantity of funds available to finance the spending plans of borrowers as well as changes in borrowers demands for funds alter interest rates which in turn affects the level of consumer and business spending, income, the Gross National Product, the employment of resources and the level of prices. Clearly, interest rates have a tremendous effect on our economy.

In Nigeria, interest rate policy had undergone several restructuring in order to ensure effectiveness and efficiency in affecting the economy. One of the important eras of these restructuring was a period between 1974 and 1992. In this period, interest rate policy was driven by considerations of promoting overall investment and channeling credit to identified priority sectors (Nnanna, 2001). However, many policy analysts contended that this practice promotes inefficiency and corruption in the system, as credit funds accessed for use in priority sectors are often diverted to other sectors rendering the policy objective ineffective (Onanuga & Shittu, 2010). Moreover, this period was also marked with high inflation and volatility, and fixing interest rates in this period amounted to disincentives for investments.

Also, the act of financial regulation and interest rate fixings led to the economy being repressed. According to McKinnon and Shaw, financial repression arises mostly when a country imposes ceiling on deposit and lending nominal interest rates at a low level relative to inflation. The resulting low or negative interest rates discourage savings mobilization and channeling of the mobilized savings through the financial system. This has a negative impact on the quantity and quality of investment and hence economic growth. This therefore necessitates the development of a new policy framework on interest rate.

The new and recent interest rate reform is a policy under financial sector liberalization, which was to achieve efficiency in the financial sector and engendering financial deepening (Obamuyi T. M., 2009). This was based on the expectation that interest rate reform would encourage domestic savings and make loanable funds available in the banking institutions. Generally, in the financial liberalization theory, McKinnon and Shaw claimed that financial liberalization policies would increase savings, which consequently spurs investment, and induce economic growth. They argued that higher interest rates brought about by liberalization leads to a more efficient allocation of resources, higher level of investment and economic growth. The focus of liberalization has been to replace the severely constrained “command and control” system with a relatively liberalized regime with prices reflecting economic costs, along with a greater reliance on the private sector as the engine of growth (Bhaduri, 2005). Hence, as it is expected, the interest rate policy will enhance the rate of domestic savings in the economy, this study is geared towards investigating the link between interest rate and the rate of economic growth in the country. Therefore, it is in this context that the remaining part of this study is structured.

## **2.0 LITERATURE REVIEW**



The relationship between interest rate and economic growth has caught the interest of many scholars both in developed and emerging economy hence, resulted into the plentiful nature of empirical literatures on the subject matter. Few of these studies are reviewed as follows;

Bruce and Ananth examined the relationship between Real Interest rates and Economic Growth. They employed sensitivity analysis and VAR estimate in their analysis and found that there exist a moderately negative correlation between real interest rate and productivity that measures economic growth (Bruce E., 2013). This negative correlation implies that long-run costs due to a period of low interest rates will tend to be slightly offset by a period of high productivity growth. Conversely, long-run benefits during a period of high interest rates will be offset by low productivity growth. They also examined the implications for the variability of long-term projections of trust fund accumulation and found that a negative correlation reduces the variability in the stochastic intervals.

In the work of Obansa, et al which was embarked upon to establish empirically the relationship existing among Exchange rate, Interest rate and economic growth in Nigerian economy using time series data which was splinted into two economic era i.e. the regulation era and the deregulation era. They employed Vector Auto Regression (VAR) technique and it was revealed that Exchange rate had a stronger impact on Economic growth than Interest rate, particularly, Interest rate impact was found to be positive but however declined as the time horizon increased(Obansa, Okoroafor, & Millicent, 2013).

Hartzmark, in his study used a time series data where economic growth was modeled as a time series process and growth is further modeled as a conditionally heteroscedastic process to improve the estimate of uncertainty (Hartzmark, 2013). From the empirical analysis, he documented that economic growth and interest rate have virtually no relation, while uncertainty and interest rate have a strong negative relation (Hartzmark, 2013).

Obamuyi also investigated the relationship between interest rates and economic growth in Nigeria using time series data. He employed the co-integration and error correction model techniques of analysis to capture both the long run and short-run dynamics of the variables in the model(Obamuyi, 2009). Results revealed that real lending rates have significant effect on economic growth and that, there also exists a unique long-run relationship between economic growth and its determinants including interest rate(Obamuyi, 2009). Obamuyi recommended that the formulation and implementation of financial policies that enhance investment friendly rate of interest is necessary for promoting economic growth in Nigeria because of the relationship between interest rate and investment and investment and growth (Obamuyi, 2009).

Adda and Scorcudid an empirical note on Real Interest Rate and Growth in Italy that was aimed at providing some empirical evidence to answer the question asked data. Panel data technique of analysis was employed and the result revealed that there was a significant negative correlation between growth and real interest (Adda & Scorcu, 1997). This result was in agreement with the traditional view of a long run positive link between growth and capital accumulation and a negative long run link between accumulation and the cost of capital.

Okoh and Nkechukwu examined the nexus of interest rate deregulation and economic growth in Nigeria. They employed the Ordinary Least Squares Regression analysis to the data. The result showed that the coefficient of interest rate contributed positively to the level of growth in the Nigerian economy (Okoh & Nkechukwu, 2014). The overall result agreed with the interest rate theory, which states that, the low level of interest rate encourages manufacturers to borrow money, which increases their productive capacities. The study recommended market driven or flexible interest rates that will not only boost productive capacities and encourage export activities but will also improve the overall performance of the Nigerian economy (Okoh & Nkechukwu, 2014).

In the same vein, Obute et al, assessed the impact of interest rates deregulation on economic growth in Nigeria with the major objective of establishing the relationship that exists between deregulated interest rates and economic growth through savings and investment in Nigeria, and also to make a comparative analysis between the impact of regulated and deregulated interest rate on economic growth in Nigeria. From the result, the study recommended that interest rates should be effectively deregulated to allow the country reap the full benefits of the financial reforms introduced years ago.

Owusu and Odhiambo investigated the relationship between interest rate Liberalization and economic growth in Nigeria using autoregressive distributed lag bounds testing approach. The conclusion from the study was that, interest rate liberalization policies have positive effect on economic growth in Nigeria (Owusu & Odhiambo, 2001). Therefore, interest rate liberalization policies together with increase in the productivity of labour, increase in capital stock and increase in foreign direct investments determines economic growth in Nigeria (Owusu & Odhiambo, 2001).

Nicholas also examined the dynamic relationship between interest rate reforms, bank based financial development and economic growth in South Africa using co-integration and error correction models. The study found a strong support for the positive impacts of interest rate reforms on financial development and discovered that interest rate reforms do not Granger cause investment and economic growth (Nicholas, 2010).

Chete also investigated the relationship between real interest rate and economic growth in Nigeria. The result showed that there was a unique long run relationship between interest rate and economic growth and that interest rate is an important determinant of economic growth in Nigeria (Chete, 2006). However, the deregulation of interest rate in Nigeria may not optimally achieve its goal if those other factors that affect investment negatively are not sorted out and tackled, he concluded (Chete, 2006).

Albu studied trends in the interest rate, investment, GDP growth relationship. The study used two partial models to examine the impact of investment on GDP growth and the relationship between interest rate and investment in the case of the Romanian economy (Albu, 2006). The study found that the behavior of the national economy system and interest rate-investment relationship tend to converge to those demonstrated in the normal market economy (Albu, 2006).



Oosterbaan et al examined the relationship between the annual economic growth rate and the real rate of Interest. The study employed the Ordinary Least Squares method of econometric analysis. The study revealed that the relationship between the real rate of interest and economic growth might be an inverted U-curve(Oosterbaan, Der Windt, & Stevewick, 2000).

Omar et al conducted a study on the impact of liberalization on the country's economic growth by using cointegration and error correction methods. The empirical results suggests that long run economic growth in Bangladesh is largely explained by physical capital and real Interest rate and growth remains unaffected by short term changes in labor force and secondary enrolment ratio. While financial liberalization has had significant negative impacts on economic growth implying that financial reforms failed to attract new investment due to adverse investment climate, the effects of trade and capital account liberalizations were rather insignificant, possibly due to weak supply response and lack of credibility of such reform programs (Omar & Habibullah, 2007). Their conclusion was that Bangladesh would not reap the full benefits of any comprehensive liberalization measures unless it can improve infrastructure and quality of governance (Omar & Habibullah, 2007).

Oshikoya used time series econometrics to investigate the impact of interest rate deregulation on econometric growth in Kenya. Results showed that the real interest rate had a negative and significant coefficient during the regulation era but was positive and significant during the deregulation era thus offering no robust result of the impact of interest rate deregulation on economic growth of that country (Oshikoya, 1992).

Charlier and Oguie carried out an analysis on "The impact of Interest rate Liberalization: Empirical Evidence for Sub-Saharan Africa, their empirical analysis based on cross-country estimation of key "complementarily" relations for West Africa indicates that indeed, the nominal interest rate may have a "residual effect" beyond compensating for inflation, and that this effect is more pronounced in "strong solidarity" environments (Challier & Oguie, 2002). They also found a weaker than expected complementarily link between cash and investment which is consistent with leakages on cash accumulation due to frequent social transfers resulting from the "vertical solidarity scheme", and therefore concluded that, the real interest rate have a significant and positive relationship with economic growth (Challier & Oguie, 2002).

Hence, given various contributions to the subject matter of this study as presented above, this study intends to revisit the relationship between interest rate and economic growth to the current period determined by the availability of data but with more robust econometric technique analysis which is capable of removing every iota of doubt on the conclusion that will be drawn from the study. In other words, this study will employ as many as possible econometric techniques for confirmatory purpose of the relationship between interest rate and economic growth in Nigeria.

### **3. Model Specification and Estimation Techniques.**

#### **3.1 Theoretical Framework**

The theoretical background on the link between interest rate and economic growth can be attributed to the seminal work of McKinnon and Shaw in the early seventies. McKinnon and Shaw postulated that financial repression had retarded the growth of many less developed countries (LDC's). They emphasized on interest rate policy, which often resulted in the imposition of below market rates thereby creating a disincentive to save and retarding the process of financial deepening. They maintained that this would result to a shortage of investible resources and growth retardation. In other words McKinnon and Shaw argued that financial repression comes in form of haphazard distortion of financial prices like interest rates, which reduces real rate of growth. They identified that investment function responds negatively to the effective real loan rate of interest and positively to the growth rate. Hence, given this backdrop, McKinnon and Shaw argued stalwartly for interest rate liberalization as an important input into the process of growth and development. This was further theoretically and empirically supported by the argument of Fry (1995) in his extensive review of the theoretical and empirical work on this issue. Therefore, the increasing acceptance of the model eventually led to financial reform becoming a standard element in structural reform programmes recommended by international financial institutions.

### 3.2 Model Specification

In line with the above reasoning (theoretical background) and the Albu's specifications as explained in Obamuyi's work, the functional relationship between interest rate and economic growth in this study relied on the model put forward by Obamuyi (Obamuyi, 2009). In other words, Obamuyi's model, which states that the standard growth function of the relationship between economic growth and interest rates include the ratio of broad money to GDP (which captures the effect of financial deepening), domestic savings/GDP ratio and shift in financial policy from regulation to deregulation of interest rate was adopted for this study. Hence, this was specified as thus:

$$GDP_t = \alpha + \beta_1 RLR_t + \beta_2 RDR_t + \beta_3 FD_t + \beta_4 INF_t + \beta_5 DSG_t + \beta_6 FPS_t + \mu_t \dots \dots \dots (3.1)$$

Where;

GDP is real GDP growth rate, RLR is real lending interest rate, RDR is real deposit rate, INF is inflation rate (measuring macroeconomic instability), FD is ratio of broad money to GDP, M2/GDP (index of financial deepening), DSG is ratio of gross domestic savings to GDP and FPS is dummy variable to capture the shift in financial policy from regulation to deregulation of interest rates in 1987,  $\mu_t$  is a white noise disturbance term and  $\beta_1 - \beta_6$  are parameters to be estimated.

The a priori expectation is summarized as follows:

$$\beta_1 < 0, \beta_2 > 0, \beta_3 > 0, \beta_4 < 0, \beta_5 > 0, \beta_6 > 0.$$

Therefore, the form of the error correction model would be:

$$D(LGDP)_t = \beta_0 + \beta_1 D(RLR)_t + \beta_2 D(RDR)_t + \beta_3 D(FD)_t + \beta_4 D(INF)_t + \beta_5 D(DSG)_t + \beta_6 D(FPS)_t + ECM_{t-1} + \mu_t \dots \dots \dots (3.2)$$

Where

D indicates the first difference of variables.

ECM stands for the error correction term (the residual series created from the cointegrating equation); and t is a time subscript.

The econometric analysis covered the period of 1981 – 2013 and the data were sourced mainly from the Central Bank of Nigeria statistical bulletin (2013), and was supported with National bureau of statistics data base.

### 3.3 Estimation Techniques

#### A. Unit Root Test

Stationarity is defined as a quality of a process in which the statistical parameters (mean and standard deviation) of the process do not change with time (Challis & Kitney, 1991). The assumption of the classical regression model necessitate that both the dependent and independent variables be stationary and the errors have a zero mean and finite variance. According to Newbold and Granger, the effect of non-stationarity includes spurious regression, high R<sup>2</sup> and low Durbin-Watson (DW) statistic. Below are the basic reasons why data must be tested for non-stationarity.

First, the stationarity or otherwise of a series can strongly influence its behavior and properties, for instance, persistence of shocks will be infinite for non-stationary series.

Secondly, if two variables are trending over time, a regression of one, on the other hand, could have a high R<sup>2</sup> even if the two are totally unrelated and this is known as spurious regressions.

Thirdly, if the variables in the regression model are not stationary, then it can be proved that the standard assumptions for asymptotic analysis will be invalid. In other words, the usual “t-ratios” will not follow a t-distribution, so it is impossible to validly undertake hypothesis tests about the regression parameters (Bowerman & O'connell, 1979).

#### Augmented Dickey-Fuller (ADF) test

The augmented dickey fuller test modifies the work done by Dickey and Fuller (1979 and 1976 respectively). The aim of the Dickey Fuller theory was to test the hypothesis that  $\delta=1$  in:

$$Y_t = \delta Y_{t-1} + \mu_t \dots\dots\dots(3.3)$$

Thus, the hypothesis are formulaed

H<sub>0</sub>: Series contains a unit root.

H<sub>1</sub>: Series is stationary.

The rejection of the null hypothesis under these tests means that the series do not have a unit root problem.

The standard Dickey Fuller test estimates the following equation:

$$\Delta Y_t = \beta_1 + \beta_2 \delta Y_{t-1} + \mu_t \dots \dots \dots (3.4)$$

where  $Y_t$  is the relevant time series,  $\Delta$  is a first difference operator,  $t$  is a linear trend and  $\mu_t$  is the error term. The error term should satisfy the assumptions of normality, constant error variance and independent error terms. According to Gujarati, if the error terms are not independent in equation (3.3), results based on the Dickey-Fuller tests will be biased.

The weakness of the DF test is that it does not take account of possible autocorrelation in the error process or term ( $\mu$ ). Clemente et al noted that a well-known weakness of the Dickey-Fuller style unit root test with  $I(1)$  as a null hypothesis is its potential confusion of structural breaks in the series as evidence of non-stationarity (Clemente, Montanes, & Reyes, 1998).

Blungmart stated that the weakness of the Dickey-Fuller test is that it does not take account of possible autocorrelation in error process,  $\mu_t$ . If  $\mu_t$  is auto-correlated, then the OLS estimates of coefficients will not be efficient and t-ratios will be biased. In view of the above mentioned weaknesses the Augmented Dickey-Fuller test was postulated and is preferred to the Dickey-Fuller test (Blungmart, 2000).

The presence of serial correlation in the residuals of the Dickey-Fuller test biases the results (Mahadeva & Robinson, 2004). When using the Dickey-Fuller test, the assumption is that the error terms are uncorrelated. But in case the error terms are correlated, Dickey and Fuller developed a test known as the Augmented Dickey-Fuller test to cater for the above mentioned problem.

The Dickey-Fuller test is only valid where there is no correlation of the error terms. If the time series is correlated at higher lags, the Augmented Dickey-Fuller test constructs a parameter correction for higher order correlation, by adding lag differences of the time series. The Augmented Dickey-Fuller test estimates the following equation:

$$\Delta Y_t = \beta_1 + \beta_2 \delta Y_{t-1} + \sum_{i=1}^n \Delta Y_{t-i} - 1 + \mu_t \dots \dots \dots (3.5)$$

Where  $\mu_t$  is a pure white noise error term and where  $\Delta Y_{t-1} = (Y_{t-1} - Y_{t-2})$ ,  $\Delta Y_{t-2} = (Y_{t-2} - Y_{t-3})$ , etc. According to Gujarati, the number of lagged difference terms to include is often determined empirically, the idea being to include enough terms so that the error term in (4.5) is serially uncorrelated. In ADF as in DF the test is whether  $\delta = 0$  and the ADF test follows the same asymptotic distribution as the DF statistic, so the same critical values can be used. The calculated value of the ADF is then compared with the critical value. If the calculated value is greater than the critical value, we reject the null hypothesis that the series has unit root, thus confirming that the series are stationary by accepting the alternative hypothesis.

In a nutshell, Gujarati states that an important an important assumption of the DF tests is that the error terms  $\mu_t$  are independently and identically distributed. The ADF test adjusts the DF test to take care of possible serial correlation in the error terms by adding the lagged differences terms of the regressand (Gujarati, 1995).

**Phillips- Perron (PP) Tests**

The Phillips-Perron tests are more comprehensive theory of unit root non-stationarity. Gujarati stated that the Phillips-Perron use non-parametric statistical methods to take care of the serial correlation in the error terms without adding lagged difference terms. According to Brooks, the tests are similar to ADF tests, but they incorporate an automatic correction to the DF procedure to allow for auto-correlated residuals (Brooks, 2008). The PP test and the ADF test have the same asymptotic distribution. Brooks explained that the PP tests often give the same conclusion as, and suffer from most of the same important limitations as, the ADF tests (Brooks, 2008).

**B. Co-integration Estimate**

This is employed to determine the number of co-integrating vectors using Johansen’s methodology with two different test statistics namely the trace test statistic and the maximum Eigen-value test statistic. The trace test 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;

$$\theta_{trace}(r) = -T \sum_{j=r+1}^P \ln(1 - \hat{\theta}_j) \dots\dots\dots(3.6)$$

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+1’ co-integrating vectors, is given by:

$$\theta_{max}(r, r, +1) = -T \ln(1 - \hat{\theta}_{r+1}) \theta_{trace}(r) = -T \sum_{j=r+1}^P \ln(1 - \hat{\theta}_j) \dots\dots\dots(3.7)$$

where  $\theta_j$  = 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 result of trace test should be preferred.

**Error Correction Model (ECM)**

ECM model comes to play when it has been established that, there exist a long run relationship between the variables under consideration. This enables us to evaluate the cointegrated series. In a situation where there is no cointegration, ECM is no longer required and we can precede to Granger causality tests directly to establish casual relationship between the variables.

In ECM, the cointegration rank shows the number of cointegrating vectors. For example a rank of two indicates that two linearly independent combinations of the non-stationary variables will be stationary. A negative and significant coefficient of the ECM (i.e.  $e_{t-1}$  in the

above equations) indicates that any short-term fluctuations between the independent variables and the dependent variable will give rise to a stable long run relationship between the variables.

#### 4. Estimation and Interpretation of Result

##### 4.1 Unit Root Test

This study commenced its empirical analysis by testing the properties of the time series, used for analysis. The stationarity test on the variables was carried out using both the Augmented Dickey-Fuller (ADF) and the Philip-Perron tests and the results are presented in table 1. It was revealed from the result that, the ADF and PP test strongly support the null hypothesis at the 10% level with a critical value of  $-2.619160$  that all variables were non-stationary at level. There was, therefore, the need to difference the variables once to arrive at stationarity. Hence, after first differencing, the variables were all stationary at first difference i.e. integrated of order one  $I(1)$ .

**Table 1: Unit Root Test**

Variable s	@ Level		Remark	@ First Difference		Remark
	ADF	PP		ADF	PP	
<b>GDP</b>	-0.040152	-0.011064	Non-stationary	-5.304311*	-5.326225*	Stationary
<b>RLR</b>	-1.614382	-1.033022	Non-stationary	-5.789816*	-5.812558*	Stationary
<b>RDR</b>	-1.960958	2.087618	Non-stationary	-4.733589*	-6.254820*	Stationary
<b>INF</b>	-2.025170	-2.048608	Non-stationary	-5.228800*	-5.657252*	Stationary
<b>FD</b>	-2.011658	2.033603	Non-stationary	-5.420746*	-7.707040*	Stationary
<b>DSG</b>	-2.212978	-2.246726	Non-stationary	-5.936698*	-6.556826*	Stationary
<b>FPS</b>	-1.897238	-1.963708	Non-stationary	-5.662286*	-5.568385*	Stationary
<b>Critical Value</b>	-3.661661			-3.661661		
	-2.960411			-2.960411		
	-2.619160			-2.619160		

Source: Authors' Computation from E-views Output

Note: \*denote significance at 1% level.

##### 4.2 Co-integration Tests

The co-integration estimate was carried out using the Johansen-Juselius maximum likelihood co-integration technique. This is a powerful co-integration test, particularly when a multivariate model is used and moreover, it is robust to various departures from normality in that it allows any of the six variables in the model to be used as the dependent variable while maintaining the same co-integration result (Nwachukwu and Odigie, 2009). We report the trace and maximum eigen-value statistics and its critical values at five per cent (5%) in the table 2 below.

Series: VLASI VLEXCH VLGDP VLINF VLINT VLMS

**TRACE STATISTIC**

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue (5%)	Trace Statistic(5%)	0.05 Critical Value	Eigenvalue (1%)	Trace Statistic(1%)	0.01 Critical Value
None **	0.887389	166.2380	125.6154	0.887389	166.2380	135.9732
At most 1 *	0.719107	98.53976	95.75366	0.719107	98.53976	104.9615
At most 2	0.512190	59.17650	69.81889	0.512190	59.17650	77.81884
At most 3	0.434724	36.92381	47.85613	0.434724	36.92381	54.68150
At most 4	0.356185	19.24014	29.79707	0.356185	19.24014	35.45817
At most 5	0.144311	5.589468	15.49471	0.144311	5.589468	19.93711
**denotes rejection of the hypothesis at the 5% & 1% level						
* denotes rejection of the hypothesis at the 5% level only						
Trace test indicates 2 cointegratingeqn(s) at the 0.05 level						
Trace test indicates 1 cointegratingeqn(s) at the 0.01 level						
<b>MAX-EIGEN STATISTIC</b>						
Hypothesized No. of CE(s)	Eigenvalue (5%)	Maxi-Eigen Statistic (5%)	0.05 Critical Value	Eigenvalue (1%)	MaxiEigen Statistic (1%)	0.01 Critical Value
None *	0.887389	67.69825	46.23142	0.887389	67.69825	52.30821
At most 1	0.719107	39.36326	40.07757	0.719107	39.36326	45.86900
At most 2	0.512190	22.25269	33.87687	0.512190	22.25269	39.37013
At most 3	0.434724	17.68367	27.58434	0.434724	17.68367	32.71527
At most 4	0.356185	13.65067	21.13162	0.356185	13.65067	25.86121
At most 5	0.144311	4.831282	14.26460	0.144311	4.831282	18.52001
At most 6	0.024161	0.758185	3.841466	0.024161	0.758185	6.634897
* denotes rejection of the hypothesis at the 5% & 1% level						
Max-eigenvalue test indicates 1 cointegratingeqn(s) at the 0.05 level						
Max-eigenvalue test indicates 1 cointegratingeqn(s) at the 0.01 level						

**Source: Authors' Computation from E-views Output**

The result from table 2 above revealed that, the Trace test statistic indicates two cointegrating equations at the 5% level of significance and one cointegrating equations at 1% significant level. While the Max-Eigenvalue test indicates one co integrating equations at the 5% and 1% level of significance. Based on the evidence above, we can safely reject the null hypothesis (H<sub>0</sub>), which says that there are no cointegrating vectors, and conveniently accept the alternative hypothesis of the presence of cointegrating vectors. Thus, we can conclude that a long run relationship exists among the variables.



### 4.3 Estimation of the Error Correction Model

According to the Granger Representation theorem, when variables are cointegrated, there must also be an error correction model (ECM) that describes the short-run dynamics or adjustments of the cointegrated variables towards their equilibrium values. ECM consists of one-period lagged cointegrating equation and the lagged first differences of the endogenous variables.

**Table 3 Results of Error Correction Model**

Dependent Variable: D(LGDP)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.219141**	0.023641	9.269570	0.0000
D(RLR)	-0.054326**	0.016602	-3.272258	0.0178
D(RDR)	0.081402**	0.008921	2.062854	0.0404
D(INF)	-0.035488**	0.016550	-2.144334	0.0338
D(FD)	0.004812**	0.001438	3.346473	0.0007
D(DSG)	0.075062**	0.024870	3.018188	0.0187
D(FPS)	0.561873**	0.173495	3.238555	0.0135
ECM(-1)	-0.179411**	0.053149	-3.375639	0.0105
R-squared	0.653388	Mean dependent var		0.210805
Adjusted R-squared	0.552292	S.D. dependent var		0.187878
S.E. of regression	0.125711	Akaike info criterion		-1.097341
Sum squared resid	0.379279	Schwarz criterion		-0.730907
Log likelihood	25.55746	Hannan-Quinn criter.		-0.975879
F-statistic	64.63084	Durbin-Watson stat		1.952391
Prob(F-statistic)	0.000242			

Note: \*\*denote significance at 5% level.

Source: Authors' Computation from E-views Output

The error correction model estimated result presented in table 3 above revealed positive and significant relationship between the dependent variable GDP and independent variables RDR, FD, DSG and FPS as well as negative and significant relationship with RLR and INF which are all in compliance with the apriori expectation.

At 1.952391, the Durbin Watson statistics does not suggest evidence of serious auto-correlation. This value is between 1.8 and 2.2 which implies the absence of autocorrelation. Therefore we reject the null hypothesis of the presence of autocorrelation among the disturbance terms in the model and accept the alternative hypothesis that there is no autocorrelation between the error terms.

The fitness of the model is confirmed by the F-statistic which is significant at 5 percent given the value of 0.000242 which led to rejection of null hypothesis that all the explanatory variables introduced in the model are not jointly significant in explaining the variations in gross domestic product and conclude that they are simultaneously significant.



The error correction term,  $ECM_{t-1}$ , was significant at 1% with a high feedback of 17.94%. It is also negatively signed, showing that the adjustment is in the right direction to restore the long run relationship. This confirms also that there is a strong relationship among the gross domestic product, real lending rate, real deposit interest rate, inflation rate, broad money to GDP, gross domestic savings to GDP and dummy variable which captures the shift in financial policy from regulation to deregulation of interest rates.

### Diagnostic Test

After the analysis and presentation of the ECM result, we now consider several diagnostic tests of model adequacy to check how “good” the fitted model is. Specifically, we shall employ the Jarque-Bera (JB) Test of Normality, the Breusch-Godfrey (BG) test for serial correlation, White heteroskedasticity and Ramsey Reset Test.

The JB test of normality is an asymptotic, or large-sample, test. It is also based on the OLS residuals. The Breusch-Godfrey test, which is also known as the Lagrange Multiplier (LM) test, is used to test for autocorrelation. It is more robust than the Durbin Watson test statistics, in the sense that it allows for:

- (i) non stochastic regressors such as lagged values of the regressand;
- (ii) higher-order schemes; and,
- (iii) simple or higher-order moving averages of white noise error terms.

White Heteroskedasticity Test is a test of heteroskedasticity in the residuals from a least square regression (White, 1980). OLS estimates are consistent in the presence of heteroskedasticity, but the conventional computed errors are no longer valid. White’s test is a test of the null hypothesis of no heteroskedasticity against heteroskedasticity of some unknown general form.

The Ramsey Reset Test which was proposed by Ramsey is a general test of specification error. If the F value is highly significant, it is an indication that the initial model might have been mis-specified. These are presented in the below table;

**Table 4: Summary of Diagnostic Tests for the ECM Model**

TEST	GDP
Jarque-Bera Normality	0.51 (0.78)
Breusch-Godfrey (B-G)	1.49 (0.18)
Heteroskedasticity	0.92 (0.54)
Ramsey Reset	0.81 (0.32)

Note: The probability is given in parenthesis while the F-statistics are above the probability value.

Source: Authors’ Computation from E-views Output

The outcome of the diagnostic tests as shown above is satisfactory. Under the null hypothesis that the residuals are normally distributed, the JB test for residual normality assumption is not violated. The table also shows that the error process could be described as normal for the relationship between interest rate and economic growth. The B-G test which is noted to have stronger statistical power indicated the absence of serial correlation. Also, the absence of white heteroskedasticity and specification error was validated. The results of the tests suggest that the model is well specified, and hence the results are credible.

#### 4.4 Causality Estimate

This section presents the causal relationship between interest rate macroeconomic variables and the gross domestic product in Nigeria.

In testing for Granger causality, two variables are usually analyzed together, while testing for their interaction. All the possible results of the analyses are four:

- (i) Unidirectional Granger causality from variable  $Y_t$  to variable  $X_t$ .
- (ii) Unidirectional Granger causality from variable  $X_t$  to  $Y_t$
- (iii) Bi-directional causality and
- (iv) No causality

**Table 4: Granger Causality Test Result**

<b>Pairwise Granger Causality Tests</b>					
<b>Null Hypothesis:</b>	<b>Obs</b>	<b>F-Statistic</b>	<b>Prob.</b>	<b>Decision</b>	<b>Type of Causality</b>
RLR does not Granger Cause LGDP	31	4.61311	0.0186	Reject $H_0$	Bi-directional causality
LGDP does not Granger Cause RLR		4.56981	0.0199	Reject $H_0$	Bi-directional causality
RDR does not Granger Cause LGDP	31	3.20556	0.0470	Reject $H_0$	Uni-directional causality
LGDP does not Granger Cause RDR		1.92799	0.1657	DNR $H_0$	No causality
INF does not Granger Cause LGDP	31	4.01559	0.0345	Reject $H_0$	Bi-directional causality
LGDP does not Granger Cause INF		4.44459	0.0242	Reject $H_0$	Bi-directional causality
FD does not Granger Cause LGDP	31	4.32408	0.0179	Reject $H_0$	Bi-directional causality
LGDP does not Granger Cause FD		4.90592	0.0189	Reject $H_0$	Bi-directional causality
DSG does not Granger Cause LGDP	31	3.02065	0.0461	Reject $H_0$	Uni-directional causality
LGDP does not Granger Cause DSG		0.49186	0.6171	DNR $H_0$	No causality
FPS does not Granger Cause LGDP	31	1.00419	0.3801	DNR $H_0$	No causality

LGDP does not Granger Cause FPS		1.06183	0.3603	DNR $H_0$	No causality
RDR does not Granger Cause RLR	31	1.53424	0.2345	DNR $H_0$	No causality
RLR does not Granger Cause RDR		2.41129	0.1095	DNR $H_0$	No causality
INF does not Granger Cause RLR	31	0.06737	0.9350	DNR $H_0$	No causality
RLR does not Granger Cause INF		2.62172	0.0918	Reject $H_0$	Uni-directional causality
FD does not Granger Cause RLR	31	9.54669	0.0008	Reject $H_0$	Bi-directional causality
RLR does not Granger Cause FD		7.30101	0.0030	Reject $H_0$	Bi-directional causality
DSG does not Granger Cause RLR	31	0.33266	0.7200	DNR $H_0$	No causality
RLR does not Granger Cause DSG		2.00827	0.1545	DNR $H_0$	No causality
FPS does not Granger Cause RLR	31	3.98568	0.0309	Reject $H_0$	Uni-directional causality
RLR does not Granger Cause FPS		1.86325	0.1753	DNR $H_0$	No causality
INF does not Granger Cause RDR	31	1.77733	0.1890	DNR $H_0$	No causality
RDR does not Granger Cause INF		1.22843	0.3092	DNR $H_0$	No causality
FD does not Granger Cause RDR	31	2.86623	0.0750	Reject $H_0$	Bi-directional causality
RDR does not Granger Cause FD		5.70936	0.0088	Reject $H_0$	Bi-directional causality
DSG does not Granger Cause RDR	31	0.66336	0.5236	DNR $H_0$	No causality
RDR does not Granger Cause DSG		1.97750	0.1587	DNR $H_0$	No causality
FPS does not Granger Cause RDR	31	3.38791	0.0493	Reject $H_0$	Uni-directional causality
RDR does not Granger Cause FPS		0.91082	0.4146	DNR $H_0$	No causality
FD does not Granger Cause INF	31	1.83611	0.1795	DNR $H_0$	No causality
INF does not Granger Cause FD		0.49915	0.6127	DNR $H_0$	No causality
DSG does not Granger Cause INF	31	1.63258	0.2148	DNR $H_0$	No causality
INF does not Granger Cause DSG		2.37128	0.1132	DNR $H_0$	No causality
FPS does not Granger Cause INF	31	4.42467	0.0284	Reject $H_0$	Bi-directional causality
INF does not Granger Cause FPS		4.30594	0.0390	Reject $H_0$	Bi-directional causality
DSG does not Granger Cause FD	31	0.20914	0.8126	DNR $H_0$	No causality
FD does not Granger Cause DSG		1.75155	0.1934	DNR $H_0$	No causality
FPS does not Granger Cause FD	31	3.36169	0.0999	Reject $H_0$	Uni-directional causality

FD does not Granger Cause FPS		0.21132	0.8109	DNR $H_0$	No causality
FPS does not Granger Cause DSG	31	3.42809	0.0563	Reject $H_0$	Bi-directional causality
DSG does not Granger Cause FPS		3.12836	0.0801	Reject $H_0$	Bi-directional causality

Note: DNR means do not reject

From the table above, the result revealed Bi-directional relationship between RLR and GDP, INF and GDP, FD and GDP, FD and RLR, FD and RDR, FPS and INF, FPS and DSG, Uni-directional relationship between RDR and GDP, DSG and GDP, RLR and INF, FPS and RLR, FPS and RDR, FPS and FD. While others show no causality between the variables as evident in the table.

## 5. Conclusion

The paper examines the relationship between interest rates and economic growth in Nigeria. The approach to this study started with developing a functional relationship between interest rate related variables and economic growth variable whose stationary properties were tested as well as long run relationship among the variables, rate of adjustment to equilibrium in case of disequilibrium and the causality between the variables. The results shows that all the variables were integrated of order one  $I(1)$ , have long run relationship, have low rate of adjustment to equilibrium and plenty of unidirectional relationship between the variables. The study therefore concludes that, interest rate is an important factor that determine or influence economic growth in Nigeria, while the advent of the deregulation of interest rate shows a strong connection with the performances of most of the interest rate variables as evident by the bi-directional relationship between them from the result as well as a fast rate of adjustment to equilibrium. Hence, given the mixed impact of these variables i.e negative and positive relationship with economic growth, for the economy to continue experiencing increasing economic growth, the government must ensure formulation of polices to enhance the performance of those variables which exert positive impact on the gross domestic product and reduce the influence of those factors with negative impact on the economic growth.

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## IMPACT OF INDUSTRIALIZATION ON ECONOMIC GROWTH: EXPERIENCE OF TEN COUNTRIES IN ECOWAS (2000-2013)

Gylych JELILOV Ph.D.

Nigerian Turkish Nile University, Department of Economics

Email: [jelilov@ntnu.edu.ng](mailto:jelilov@ntnu.edu.ng)

Enwerem HART IHEOMA

Nigerian Turkish Nile University, Department of Economics

Email: [enweremeze@icloud.com](mailto:enweremeze@icloud.com)

### Abstract

The work focused on the Impact of Industrialization on Economic Growth: The ten (10) selected Economic Community of West Africa (ECOWAS) Experience members' states (2000-2013) namely; Republic of Nigeria, Benin Republic, Cabo Verde, Cote D'voire, The Gambia, Ghana, Guinea Bissau, Mali, Niger and Senegal. The study set three major objectives which include investigating the effect of fiscal and monetary policy on Gross Domestic Product, determining the relationship between government spending and industrial development and to determine the effect of budget on investment or employment generation. The study only utilized secondary data from National Bureau of Statistics and Central Bank of Nigeria statistical bulletin 2014. The study specified a workable model in which GDP is the dependent variable while industrial output, foreign direct investment, interest rate, foreign exchange rate and inflation rate were independent variables. Ordinary least square (OLS) technique, F-test was used as analytical techniques. The study revealed that industrialization has a negative impact on economic growth in Nigeria in the long run. This was confirmed by the F-test value (559.02). The study recommended that government should redirect its industrial and investment policy so as to increase output of the domestic production (RGDP), flexible exchange rate and control inflation rate since that showed that increase in exchange and inflation rate, decreased output, industrial and investment policy should be flexible on infant industries so as to encourage productivity and improve GDP.

**Key Words:** Industrialization, Growth, Nigeria, GDP

### 1. 0 INTRODUCTION

The overriding objective of industrial policy is to accelerate the pace of industrial development by radically increasing value-added at every stage of the value chain. Economic Community of West Africa members' state's resources will no longer, in the main be traded in their primary state. The regional government should emphasize increases in Total Factor Productivity (TFP) by pursuing knowledge, skill and intensive production on the basis of available best practices. Members' state's Industrial Development Strategy should encourage forward and backward linkages within a few chosen niches. Government will continue to provide the enabling environment for private sector leadership, facilitate renewal for sunset industries, and encourage innovators across the members' states.



Industries are very important in a developing country like ECOWAS states because their marginal revenue products of labour are higher than the marginal revenue product of labour in the agricultural sector. Thus, the releasing of labour force from agricultural sector to the industrial sector increases the marginal product of labour in the agricultural sector and increases the overall revenue and output of the society (economic-growth). Therefore, industrialization is a *sin qua non* for sustainable economic growth in the members' states.

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: Leibenstein's (1957) theory of critical minimum effort thesis; Nelson's (1956) theory of low equilibrium trap; Rosenstein – Rodan's (1943) theory of the big push; the doctrine of balance growth; Hirschman's (1958) doctrine of unbalance growth; the import substitution strategy; and export promotion strategy. Overtime, the influences of these theories on policy decisions have been varied. To examine the impact of industrialization in the ten (10) selected members' states, the study hypothesizes that industrialization does not stimulate economic growth in the ten (10) selected members' states.

To carry out this analysis, the study introduces the subject of the study, giving the study's background on the above. The rest of the work is classified into statement of the problem, objective of the study, literature review, research methodology used; estimated results and analysis of the results; and finally concludes the study and gives policy recommendations.

### **1.1 Problem Statement**

More often than not, people commonly speak or argue that the Nigerian economy has myriad or hydro-headed economic problems. This means that people clearly observe the macroeconomic instability in the ten (10) selected members' states.

With regard to Nigeria, despite all efforts, since October 1960 the level of industrialization remains very low even with her oil wealth. This has been the situation notwithstanding the varied strategies that have been put to use overtime for its industrialization (Uzechukwu, 2015). Even though the economy was adjudged to be fairly good it however, fluctuated because the real Gross Domestic Product (RGDP) was unstable (CBN, 2004). Also, other economic indicators such as industrial output, foreign direct investment, interest rate, foreign exchange rate and inflation rate show some symptoms of ailing economy. It is against this background that this research is carried out to find monetary and fiscal policy in Nigeria that is effective in economic growth and stability.

### **1.2 Objectives of the study**

The general objective of the study was the impact of Industrialization on Economic Growth in the ten (10) selected members' states. While the specific objectives include to:

Investigate the effect of fiscal policy on Gross Domestic Product (GDP)

- i. Examine the effectiveness of fiscal and monetary policy on economic growth

- ii. To determine the relationship between government spending and industrial development
- iii. To determine the effect of Budget on investment or employment generation

## 2. Literature Review

The theoretical framework used in this study is based on aggregate production function based on endogenous growth model developed by Jones and Manuelli (1990) which avoid diminishing returns to capital. The model is presented as follows:

$y = f(k, l)$  Where:  $y$  is per capital output;  $k$  is capital industrial output ratio; and  $l$  is labour industrial output ratio.

The aggregate production function has constant average and marginal product of capital and it does not exhibit convergence property (Barro and Sala-i-Martin, 2004). The term industrial growth or more simply 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 et al., 2010). It can also be defined in terms of income levels reaching a certain threshold. It is on the basis of this that countries are classified into, low-income; lower middle income, higher middle income, lower upper income, higher upper income and high-income countries. This is a broader dimension of industrialization.

In a work of this nature, it is conventional to use the first definition above. It is against this background that Sullivan and Sheffin (2003) define industrialization as the process of societal and economic change that transforms a human group from agrarian to industrial one. In their view, industries bring about change in three ways: modernisation, development of large scale energy and metallurgy production. These aspects are closely linked with economy growth. They also assert that industrialization brings with it the sociological process of rationalisation.

Economic growth has been conceived as an increase in per capita income over a period of time (Clunies-Ross, et al., 2010; Jhingan, 2005). Abbott (2003) considers the following as key positive factors stimulating industrialization: good governance, good legal framework, availability of natural resources, relative low cost skilled labour, and technology.

Bolaky (2011) summarizes most of the empirical and theoretical arguments in favour of industrialisation. He posits that there is a positive correlation between the level of industrialisation and per capita income for developing countries. Empirical evidence demonstrates that there is a higher marginal product of labour from the industrial sector than in the agricultural sector and so the transferring of resources from the agricultural sector to the industrial sector raises total productivity in the economy.

There are studies relating to industrialisation and economic growth. Blomstrom, Lipsey and Zegan (1994) posit that industrialisation through foreign investors can exert a positive effect on economic growth rate. They argued that industrialisation's contribution to economic growth rate is dependent on the threshold level of income. This means that, below the threshold level of income, the contribution of industries to economic growth is not significant

and above the threshold, it is significant. The explanation is that, it is only countries that have reached a certain income level that can benefit effectively from the packages of those industries and foreign investors. Such packages are new technologies, human capital development and managerial skills.

Shafaeddin (2005) analyses economic performance of a sample of developing countries that have undertaken economic reforms since the early 1980s with the objective of expanding exports and diversification in favour of manufacturing sector.

### 3.0 Methodology

#### 3.1 Study area

The study was designed to cover in the ten (10) selected members' states namely; Federal Republic of Nigeria, Benin Republic, Cabo Verde, Co'te d'Ivoire, The Gambia, Ghana, Guinea Bissau, Mali, Niger and Senegal.

#### 3.2 Method of data collection

This research work only utilized secondary data from the members' states' National Statistics offices and World Bank database.

#### 3.3 Method of data Analysis

Models were specified and ordinary least square (OLS) regression was used to analyze the models. Estimation of parameters of the models required data on industrial output, foreign direct investment, foreign exchange rate interest rate and Gross Domestic Product at constant prices. Some criteria such as coefficient of determination ( $R^2$ ), T-test, F-test and Durbin - Watson (DW) statistics were used. Durbin Watson statistics was used to be able to examine the extent of serial correlation among variables.

#### 4.4 Model specification

$$RGDP = F(X_1, X_2, X_3, X_4) + U_t$$

Where

RGDP = Real Gross Domestic Product (Y)

$X_1$  = Manufacture output (MO)

$X_2$  = Foreign Direct Investment (FDI)

$X_3$  = Foreign Exchange rate (FER)

$X_4$  = Inflation rate (IR)

$X_5$  = Bank Interest rate (BIR)

$U_t$  = Stochastic (error) variable

#### Nigerian econometric Model

$$RGDP = 2.076 + 0.904MA + 0.045FDI - 0.047EXR + 0.005BIR - 0.021IR + U_t$$

(10.396) (14.962) (2.643) (-0.418) (0.056) (-1.025)

T-statistics are in parenthesized  
 $R^2 = 0.997$       Adjusted  $R^2 = 0.995$   
 F-Statistics = 599.02    D-W = 1.61

The Nigerian economic model above, shows that Manufacturing output increase real Gross Domestic Product by 0.9 magnitude, Foreign Direct Investment increase real Gross Domestic Product by 0.045 magnitude, Interest rate increase real Gross Domestic Product by 0.005 magnitude while increase in Exchange rate decrease real Gross Domestic Product by -0.047 which has a negative relationship with RGDP and increase in Inflation also decreases real Gross Domestic Product by -0.021 magnitude.

From model, the result indicates that  $R^2$  is 0.99. This shows that over 99 percent of the variation in real Gross Domestic Product (RGDP) growth is explained by the five independent variables taken together. The coefficient of manufacturing output, Foreign Direct Investment and interest rate are rightly signed (that is positive) and significant at 5% level of significance. This shows that the growth of manufacturing output, Foreign Direct Investment and interest rate are have positive effect on the growth of the economy while exchange rate and inflation rate are negatively sign that is exchange and inflation rate by eroding the purchasing power of the people.

### **Benin Republic econometric Model**

$$RGDP = 1.334 + 1.043MA + 0.0001FDI - 0.218EXR - 0.0005INTR - 0.002INFR + U_t$$

(1.727) (19.003) (-0.124)      (-1.754) (-0.140) (-1.340)

T-statistics are in parenthesized  
 $R^2 = 0.998$       Adjusted  $R^2 = 0.996$   
 F-Statistics = 832.50    D-W = 2.06

The Benin Republic economic model above, shows that Manufacturing output increase real Gross Domestic Product by 1.04 magnitude, Foreign Direct Investment increase real Gross Domestic Product by 0.0001 magnitude, while increase in Exchange rate and interest rate decrease real Gross Domestic Product by -0.0218 and -0.0005 respectively which has a negative relationship with RGDP and increase in Inflation also decreases real Gross Domestic Product by -0.002 magnitude.

From model, the result indicates that  $R^2$  is 0.99. This shows that over 99 percent of the variation in real Gross Domestic Product (RGDP) growth is explained by the five independent variables taken together. The coefficient of manufacturing output, Foreign Direct Investment and interest rate are rightly signed (that is positive) and significant at 5% level of significance. This shows that the growth of manufacturing output, Foreign Direct Investment and interest rate are have positive effect on the growth of the economy while exchange rate and inflation rate are negatively sign that is exchange and inflation rate by eroding the purchasing power of the people.

### **Cabo Verde econometric Model**

$$\text{RGDP} = 7.578 + 0.536\text{MA} + 0.002\text{FDI} - 1.311\text{EXR} - 0.016\text{INTR} - 0.009\text{INFR} + U_t$$

$$(2.241) (3.006)(0.030) (-1.721) (-1.382) (-0.508)$$

T-statistics are in parentheses

$$R^2 = 0.990 \quad \text{Adjusted } R^2 = 0.982$$

$$F\text{-Statistics} = 122.19 \quad D\text{-W} = 2.00$$

The Cabo Verde economic model above, shows that Manufacturing output increase real Gross Domestic Product by 0.536 magnitude, Foreign Direct Investment increase real Gross Domestic Product by 0.002 magnitude, while increase in Exchange rate and interest rate decrease real Gross Domestic Product by -1.311 and -0.016 respectively which has a negative relationship with RGDP and increase in Inflation also decreases real Gross Domestic Product by -0.009 magnitude.

From model, the result indicates that  $R^2$  is 0.99. This shows that over 99 percent of the variation in real Gross Domestic Product (RGDP) growth is explained by the five independent variables taken together. The coefficient of manufacturing output, Foreign Direct Investment and interest rate are rightly signed (that is positive) and significant at 5% level of significance. This shows that the growth of manufacturing output, Foreign Direct Investment and interest rate are have positive effect on the growth of the economy while exchange rate and inflation rate are negatively sign that is exchange and inflation rate by eroding the purchasing power of the people.

### **The Gambian econometric Model**

$$\text{RGDP} = 2.325 + 0.834\text{MA} + 0.223\text{FDI} + 0.066\text{EXR} - 0.01\text{INTR} + 0.015\text{INFR} + U_t$$

$$(1.173) (3.466)(0.651) (-0.067) (-1.336) (1.208)$$

T-statistics are in parentheses

$$R^2 = 0.863 \quad \text{Adjusted } R^2 = 0.777$$

$$F\text{-Statistics} = 10.07 \quad D\text{-W} = 1.86$$

The Gambian economic model above, shows that Manufacturing output increase real Gross Domestic Product by 0.834 magnitude, Foreign Direct Investment increase real Gross Domestic Product by 0.223 magnitude, Exchange rate increase real Gross Domestic Product by 0.066 magnitude, while increase interest rate decrease real Gross Domestic Product by -0.01 which has a negative relationship with RGDP and increase in Inflation also increases real Gross Domestic Product by -0.015 magnitude.

From model, the result indicates that  $R^2$  is 0.86. This shows that over 86 percent of the variation in real Gross Domestic Product (RGDP) growth is explained by the five independent variables taken together. The coefficient of manufacturing output, Foreign Direct Investment and interest rate are rightly signed (that is positive) and significant at 5% level of significance. This shows that the growth of manufacturing output, Foreign Direct Investment and interest rate are have positive effect on the growth of the economy while exchange rate and inflation rate are negatively sign that is exchange and inflation rate by eroding the purchasing power of the people.

### Sierra Leone econometric Model

$$RGDP = -1.62 + 0.002RGDP_{t-1} + 0.98MA + 0.079FDI + 1.17EXR + 0.0008INTR - 0.006INFR + U_t$$

(-1.582) (0.278)(4.681) (-1.341) (2.625) (0.103) (-1.416)

T-statistics are in parentheses

$$R^2 = 0.987 \quad \text{Adjusted } R^2 = 0.976$$

$$F\text{-Statistics} = 91.19 \quad D\text{-W} = 1.53$$

The Sierra Leone economic model above, shows that Manufacturing output increase real Gross Domestic Product by 0.98 magnitude, Foreign Direct Investment increase real Gross Domestic Product by 0.079 magnitude Exchange and interest rate by 1.17 and 0.008 respectively while increase in Inflation also decreases real Gross Domestic Product by - 0.006 magnitude.

From model, the result indicates that  $R^2$  is 0.99. This shows that over 99 percent of the variation in real Gross Domestic Product (RGDP) growth is explained by the five independent variables taken together. The coefficient of manufacturing output, Foreign Direct Investment and interest rate are rightly signed (that is positive) and significant at 5% level of significance. This shows that the growth of manufacturing output, Foreign Direct Investment and interest rate are have positive effect on the growth of the economy while exchange rate and inflation rate are negatively sign that is exchange and inflation rate by eroding the purchasing power of the people.

### Liberian econometric Model

$$RGDP = 1.74 + 0.11RGDP_{t-1} + 0.66MA + 0.032FDI + 1.496EXR + 0.017INTR - 0.001INFR + U_t$$

(1.677) (-6.645)(6.416) 1.040) (2.765) (1.084) (-0.279)

T-statistics are in parentheses

$$R^2 = 0.987 \quad \text{Adjusted } R^2 = 0.976$$

$$F\text{-Statistics} = 91.19 \quad D\text{-W} = 1.53$$

The Liberian economic model above, shows that Manufacturing output increase real Gross Domestic Product by 0.66 magnitude, Foreign Direct Investment increase real Gross Domestic Product by 0.032 magnitude Exchange and interest rate by 1.496 and 0.017 respectively while increase in Inflation also decreases real Gross Domestic Product by - 0.001 magnitude.

From model, the result indicates that  $R^2$  is 0.99. This shows that over 99 percent of the variation in real Gross Domestic Product (RGDP) growth is explained by the five independent variables taken together. The coefficient of manufacturing output, Foreign Direct Investment and interest rate are rightly signed (that is positive) and significant at 5% level of significance. This shows that the growth of manufacturing output, Foreign Direct Investment and interest rate are have positive effect on the growth of the economy while exchange rate and inflation rate are negatively sign that is exchange and inflation rate by eroding the purchasing power of the people.

### Co'te divoire econometric Model

$$\text{RGDP} = -1.918 + 0.16\text{RGDP}_{t-1} + 1.32\text{MA} + 0.10\text{FDI} + 0.16\text{EXR} - 0.002\text{INTR} - 0.0009\text{INFR} + U_t$$

$$(-1.250) (7.768)(10.142) (-2.001) (0.967) (-0.397) (0.289)$$

T-statistics are in parenthesized

$$R^2 = 0.992 \quad \text{Adjusted } R^2 = 0.986$$

$$F\text{-Statistics} = 162.45 \quad D\text{-W} = 2.03$$

The Ivoirian economic model above, shows that Manufacturing output increase real Gross Domestic Product by 1.32 magnitude, Foreign Direct Investment increase real Gross Domestic Product by 0.10 magnitude and Exchange rate by 0.16 magnitude while interest and inflation rate decrease real Gross Domestic Product by -0.002 and -0.0009 respectively which has a negative relationship with RGDP.

From model, the result indicates that  $R^2$  is 0.99. This shows that over 99 percent of the variation in real Gross Domestic Product (RGDP) growth is explained by the five independent variables taken together. The coefficient of manufacturing output, Foreign Direct Investment and interest rate are rightly signed (that is positive) and significant at 5% level of significance. This shows that the growth of manufacturing output, Foreign Direct Investment and interest rate are have positive effect on the growth of the economy while exchange rate and inflation rate are negatively sign that is exchange and inflation rate by eroding the purchasing power of the people.

### Niger econometric Model

$$\text{RGDP} = 4.531 + 0.689\text{MA} + 0.051\text{FDI} - 0.451\text{EXR} + 0.013\text{INTR} + 1.53\text{INFR} + U_t$$

$$(4.011) (6.379)(2.429) (-2.333) (1.283) (0.007)$$

T-statistics are in parenthesized

$$R^2 = 0.990 \quad \text{Adjusted } R^2 = 0.984$$

$$F\text{-Statistics} = 165.21 \quad D\text{-W} = 1.97$$

Niger economic model above, shows that Manufacturing output increase real Gross Domestic Product by 0.69 magnitude, Foreign Direct Investment increase real Gross Domestic Product by 0.051 magnitude, interest rate decrease real Gross Domestic Product by 0.013 and inflation rate by 1.53 respectively while increase Exchange rate increase real Gross Domestic Product by -0.451 magnitude.

From model, the result indicates that  $R^2$  is 0.99. This shows that over 99 percent of the variation in real Gross Domestic Product (RGDP) growth is explained by the five independent variables taken together. The coefficient of manufacturing output, Foreign Direct Investment and interest rate are rightly signed (that is positive) and significant at 5% level of significance. This shows that the growth of manufacturing output, Foreign Direct Investment and interest rate are have positive effect on the growth of the economy while exchange rate and inflation rate are negatively sign that is exchange and inflation rate by eroding the purchasing power of the people.



### Guinea Bissau econometric Model

$$\text{RGDP} = -1.808 + 0.934\text{MA} + 0.070\text{FDI} + 1.019\text{EXR} - 0.0005\text{INTR} + 0.011\text{INFR} + U_t$$

$$(-0.498) \quad (4.049) \quad (1.601) \quad (1.483) \quad (-0.547) \quad (2.225)$$

T-statistics are in parentheses

$$R^2 = 0.931 \quad \text{Adjusted } R^2 = 0.882$$

$$F\text{-Statistics} = 19.01 \quad D\text{-W} = 1.50$$

Guinea Bissau economic model above, shows that Manufacturing output increase real Gross Domestic Product by 0.934 magnitude, Foreign Direct Investment increase real Gross Domestic Product by 0.070 magnitude and inflation rate by 0.011 respectively while increase interest rate decrease real Gross Domestic Product by -0.0005.

From model, the result indicates that  $R^2$  is 0.93. This shows that over 93 percent of the variation in real Gross Domestic Product (RGDP) growth is explained by the five independent variables taken together. The coefficient of manufacturing output, Foreign Direct Investment and interest rate are rightly signed (that is positive) and significant at 5% level of significance. This shows that the growth of manufacturing output, Foreign Direct Investment and interest rate are have positive effect on the growth of the economy while exchange rate and inflation rate are negatively sign that is exchange and inflation rate by eroding the purchasing power of the people.

### Togo econometric model

$$\text{RGDP}_{t-1} = -258.72 + 0.55\text{RGDP}_{t-2} + 20.59\text{MA} + 1.44\text{FDI} + 25.79\text{EXR} + 0.135\text{INTR} - 0.076\text{INFR} + U_t$$

$$(-1.205) \quad (1.899) \quad (1.152) \quad (0.615) \quad (0.977) \quad (1.184) \quad (-0.249)$$

T-statistics are in parentheses

$$R^2 = 0.612 \quad \text{Adjusted } R^2 = 0.279$$

$$F\text{-Statistics} = 1.84 \quad D\text{-W} = 2.45$$

The model the above when dependent variable was lag by previous year as shows in above equation above, Manufacturing output decrease real Gross Domestic Product by 20.59 magnitude, Foreign Direct Investment increase real Gross Domestic Product by 0.144 magnitude, Exchange rate decrease real Gross Domestic Product by 25.79 while Interest rate and inflation rate decrease real Gross Domestic Product by -0.008 and -0.076 respectively which has a negative relationship with RGDP.

From the model above, the result indicates that  $R^2$  is 0.61. This shows that over 61 percent of the variation in real Gross Domestic Product (RGDP) growth is explained by the five independent variables taken together. The coefficient of manufacturing output, Foreign Direct Investment are rightly signed in the long run (that is negative) and significant at 5% level of significance. This shows that the growth of manufacturing output, Foreign Direct Investment and interest rate are have positive effect on the growth of the economy while exchange rate

and inflation rate are negatively sign that is exchange and inflation rate by eroding the purchasing power of the people.

### Result and Discussion

See appendix 1-10 below show the various values of both dependent and independent variables. It shows GDP at constant prices, manufacturing output, Foreign Direct Investment, Exchange rate, interest and inflationrate.

### Summary of the regression result models;

#### Nigerian Model

$$\text{RGDP} = 2.076 + 0.904\text{MO} + 0.045\text{FDI} - 0.047\text{EXR} + 0.005\text{BIR} - 0.021\text{IR} + U_t$$

(10.396) (14.962) (2.643) (-0.418) (0.056) (-1.025)

#### Benin Republic econometric Model

$$\text{RGDP} = 1.334 + 1.043\text{MA} + 0.0001\text{FDI} - 0.218\text{EXR} - 0.0005\text{INTR} - 0.002\text{INFR} + U_t$$

(1.727) (19.003) (-0.124) (-1.754) (-0.140) (-1.340)

#### Cabo Verde econometric Model

$$\text{RGDP} = 7.578 + 0.536\text{MA} + 0.002\text{FDI} - 1.311\text{EXR} - 0.016\text{INTR} - 0.009\text{INFR} + U_t$$

(2.241) (3.006)(0.030) (-1.721) (-1.382) (-0.508)

#### The Gambian econometric Model

$$\text{RGDP} = 2.325 + 0.834\text{MA} + 0.223\text{FDI} + 0.066\text{EXR} - 0.01\text{INTR} + 0.015\text{INFR} + U_t$$

(1.173) (3.466)(0.651) (-0.067) (-1.336) (1.208)

#### Sierra Leone econometric Model

$$\text{RGDP} = -1.62 + 0.002\text{RGDP}_{t-1} + 0.98\text{MA} + 0.079\text{FDI} + 1.17\text{EXR} + 0.0008\text{INTR} - 0.006\text{INFR} + U_t$$

(-1.582) (0.278)(4.681) (-1.341) (2.625) (0.103) (-1.416)

#### Liberian econometric Model

$$\text{RGDP} = 1.74 + 0.11\text{RGDP}_{t-1} + 0.66\text{MA} + 0.032\text{FDI} + 1.496\text{EXR} + 0.017\text{INTR} - 0.001\text{INFR} + U_t$$

(1.677) (-6.645)(6.416) 1.040) (2.765) (1.084) (-0.279)

#### Co'te d'ivoire econometric Model

$$\text{RGDP} = -1.918 + 0.16\text{RGDP}_{t-1} + 1.32\text{MA} + 0.10\text{FDI} + 0.16\text{EXR} - 0.02\text{INTR} - 0.0009\text{INFR} + U_t$$

(-1.250) (7.768)(10.142) (-2.001) (0.967) (-0.397) (0.289)

#### Niger econometric Model

$$\text{RGDP} = 4.531 + 0.689\text{MA} + 0.051\text{FDI} - 0.451\text{EXR} + 0.013\text{INTR} + 1.53\text{INFR} + U_t$$

$$(4.011) (6.379) (2.429) (-2.333) (1.283) (0.007)$$

### Guinea Bissau econometric Model

$$\text{RGDP} = -1.808 + 0.934\text{MA} + 0.070\text{FDI} + 1.019\text{EXR} - 0.0005\text{INTR} + 0.011\text{INFR} + U_t$$

$$(-0.498) (4.049) (1.601) (1.483) (-0.547) (2.225)$$

### Togo econometric Model

$$\text{RGDP}_{t-1} = -258.72 + 0.55\text{RGDP}_{t-2} + 20.59\text{MA} + 1.44\text{FDI} + 25.79\text{EXR} + 0.135\text{INTR} - 0.076\text{INFR} + U_t$$

$$(-1.205) (1.899) (1.152) (0.615) (0.977) (1.184) (-0.249)$$

### Test of goodness of fit ( $R^2$ )

The coefficient of determination ( $R^2$ ) in models shows that the models were significant at ( $R^2=0.997$  or 99.5%) this shows that 99% of the variation in the dependent variable that is real GDP were explained by the various independent variables. 0.003 or 3% was not explained due to extraneous factors not captured in the model above.

### F-statistics

At 5% of significant, the models above showed that there was significant relationship between real GDP and manufacturing output, Foreign Direct Investment, Exchange rate, interest rate and inflation. Since  $F\text{-test} = T\text{-cal} (599.02) > T\text{-tab} (3.14)$  this re-confirmed the value of  $R^2 = 99\%$  which was significant. This is because the  $f\text{-cal} (599.02) > f\text{-tab} (3.14)$  at 5% level of significance.

### SUMMARY

This work focused on the impact of industrialization on economic growth and stability in the ten selected Economic Community of West Africa States members' states (2000-2013). Essentially, some macroeconomic indicators such as real Gross Domestic Product (GDP) is the dependent variable while manufacturing output, Foreign Direct Investment, Exchange rate, interest rate and inflation rate were independent variables.

### CONCLUSION & RECOMMENDATIONS

The conclusion emerging from this study is that impact of industrialization has a negative impact on economic growth in the Economic Community of West Africa members' states. Therefore, policy measures should be put in place across the members' states to improve human capital development across the region with a view to adapt modern technology and to diffuse it in the industrial output to improve the overall productivity of all economic activity sectors and ensure sustainable development across its members' state.

Base on the outcome of this study, the following recommendation were proffered. Regional government within the region should create a good environment for industrial growth through:

Provision of good governance mechanism and a good legal framework to protect property rights, improve the judicial and the security system to minimise the crime rate terrorism in the region, improve on social and economic infrastructure especially electricity supply and the transport system and good and functional education. This can reduce the cost of production, improve diffusion of technology and make the region manufacturers' products more competitive. Since the sector have capacity of linkage within and between sectors of the economy can generate values, create wealth and reduce the poverty level of the members' state populace.

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### Appendix 1: Nigeria

Dependent Variable: RGDP

Method: Least Squares

Date: 02/29/16 Time: 15:21

Sample: 2000 2013

Included observations: 14

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MANGDP	0.473982	0.144013	3.291243	0.0110
FDI	0.154667	0.124843	1.238892	0.2505
EXCR	0.733634	0.630960	1.162726	0.2784
INTR	-0.620135	0.644666	-0.961948	0.3642
INFR	-0.195735	0.125028	-1.565527	0.1561
C	4.329268	1.642579	2.635653	0.0299
R-squared	0.977872	Mean dependent var		11.31857
Adjusted R-squared	0.964042	S.D. dependent var		0.295241
S.E. of regression	0.055986	Akaike info criterion		-2.629916
Sum squared resid	0.025075	Schwarz criterion		-2.356034
Log likelihood	24.40941	F-statistic		70.70567
Durbin-Watson stat	2.075556	Prob(F-statistic)		0.000002

Source: E-Views 7.0

**Appendix 2: Benin Republic**

Dependent Variable: RGDP

Method: Least Squares

Date: 02/29/16 Time: 15:25

Sample: 2000 2013

Included observations: 14

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MANGDP	1.043269	0.054900	19.00302	0.0000
FDI	0.000156	0.001258	0.123937	0.9044
EXCR	-0.218350	0.124429	-1.754815	0.1174
INTR	-0.000580	0.004140	-0.140179	0.8920
INFR	-0.002127	0.001587	-1.340309	0.2170
C	1.333995	0.772580	1.726674	0.1225
R-squared	0.998082	Mean dependent var	9.682143	
Adjusted R-squared	0.996883	S.D. dependent var	0.184648	
S.E. of regression	0.010309	Akaike info criterion	-6.014041	
Sum squared resid	0.000850	Schwarz criterion	-5.740159	
Log likelihood	48.09828	F-statistic	832.5000	
Durbin-Watson stat	2.063605	Prob(F-statistic)	0.000000	

Source: E-Views 7.0

**Appendix 3: Cabo Verde**

Dependent Variable: RGDP

Method: Least Squares

Date: 02/29/16 Time: 15:28

Sample(adjusted): 2001 2013

Included observations: 12

Excluded observations: 1 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MANGDP	0.535700	0.178533	3.000569	0.0240
FDI	0.002411	0.079604	0.030284	0.9768
EXCR	-1.310642	0.761432	-1.721285	0.1360
INTR	-0.016404	0.011864	-1.382747	0.2160
INFR	-0.000850	0.001674	-0.507785	0.6297
C	7.577909	3.381488	2.240998	0.0663
R-squared	0.990275	Mean dependent var	9.119167	
Adjusted R-squared	0.982171	S.D. dependent var	0.165225	
S.E. of regression	0.022062	Akaike info criterion	-4.483080	
Sum squared resid	0.002920	Schwarz criterion	-4.240627	
Log likelihood	32.89848	F-statistic	122.1926	
Durbin-Watson stat	2.002103	Prob(F-statistic)	0.000006	



Source: E-Views 7.0

**Appendix 4: The Gambia**

Dependent Variable: RGDP

Method: Least Squares

Date: 02/29/16 Time: 15:30

Sample: 2000 2013

Included observations: 14

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MANGDP	0.834672	0.240836	3.465722	0.0085
FDI	0.022687	0.034805	0.651833	0.5328
EXCR	0.065848	0.098369	0.669400	0.5221
INTR	-0.010227	0.007656	-1.335706	0.2184
INFR	0.015654	0.012958	1.208097	0.2615
C	2.324851	1.981397	1.173339	0.2744
R-squared	0.862917	Mean dependent var		8.875000
Adjusted R-squared	0.777240	S.D. dependent var		0.096377
S.E. of regression	0.045487	Akaike info criterion		-3.045240
Sum squared resid	0.016553	Schwarz criterion		-2.771359
Log likelihood	27.31668	F-statistic		10.07178
Durbin-Watson stat	1.863362	Prob(F-statistic)		0.002678

Source: E-Views 7.0

**Appendix 5: Sierra Leone**

Dependent Variable: RGDP

Method: Least Squares

Date: 02/29/16 Time: 15:40

Sample: 2000 2013

Included observations: 14

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RGDPT	0.001981	0.007119	0.278287	0.7888
MANGDP	0.981032	0.209578	4.680980	0.0023
FDI	0.079818	0.059535	1.340704	0.2219
EXCR	1.173607	0.447041	2.625280	0.0341
INTR	0.000802	0.007784	0.102964	0.9209
INFR	-0.005905	0.003440	-1.716236	0.1298
C	-1.615103	1.020866	-1.582091	0.1576
R-squared	0.987367	Mean dependent var		9.295714
Adjusted R-squared	0.976539	S.D. dependent var		0.212448

S.E. of regression	0.032541	Akaike info criterion	-3.705802
Sum squared resid	0.007412	Schwarz criterion	-3.386274
Log likelihood	32.94062	F-statistic	91.18505
Durbin-Watson stat	1.530793	Prob(F-statistic)	0.000003

Source: E-Views 7.0

### Appendix 6: Liberia

Dependent Variable: RGDP

Method: Least Squares

Date: 02/29/16 Time: 15:45

Sample: 2000 2013

Included observations: 14

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RGDPT	-0.111389	0.016762	-6.645443	0.0003
MANGDP	0.657698	0.102498	6.416716	0.0004
FDI	0.032781	0.031520	1.040021	0.3329
EXCR	1.496511	0.541163	2.765359	0.0279
INTR	0.017185	0.015852	1.084094	0.3142
INFR	-0.001327	0.004752	-0.279277	0.7881
C	1.743445	1.039655	1.676947	0.1375
R-squared	0.974468	Mean dependent var	8.915000	
Adjusted R-squared	0.952583	S.D. dependent var	0.212232	
S.E. of regression	0.046214	Akaike info criterion	-3.004196	
Sum squared resid	0.014950	Schwarz criterion	-2.684667	
Log likelihood	28.02937	F-statistic	44.52714	
Durbin-Watson stat	1.687056	Prob(F-statistic)	0.000032	

Source: E-Views 7.0

### Appendix 7: Co'te divoire

Dependent Variable: RGDP

Method: Least Squares

Date: 02/29/16 Time: 15:48

Sample: 2000 2013

Included observations: 14

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RGDPT	0.016106	0.002073	7.768305	0.0001
MANGDP	1.321554	0.130300	10.14241	0.0000
FDI	0.102760	0.051348	2.001238	0.0855
EXCR	0.160552	0.165880	0.967881	0.3653
INTR	-0.002405	0.006057	-0.397092	0.7031
INFR	0.000992	0.003435	0.288905	0.7810
C	-1.918154	1.534140	-1.250312	0.2514
R-squared	0.992870	Mean dependent var	10.26071	

Adjusted R-squared	0.986758	S.D. dependent var	0.135730
S.E. of regression	0.015619	Akaike info criterion	-5.173791
Sum squared resid	0.001708	Schwarz criterion	-4.854262
Log likelihood	43.21654	F-statistic	162.4506
Durbin-Watson stat	2.035882	Prob(F-statistic)	0.000000

Source: E-Views 7.0

### Appendix 8: Niger

Dependent Variable: RGDP

Method: Least Squares

Date: 02/29/16 Time: 15:50

Sample: 2000 2013

Included observations: 14

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MANGDP	0.689872	0.108148	6.378964	0.0002
FDI	0.051173	0.021065	2.429293	0.0412
EXCR	-0.450515	0.193037	-2.333823	0.0479
INTR	0.012636	0.009845	1.283601	0.2352
INFR	1.53E-05	0.002164	0.007077	0.9945
C	4.531584	1.129771	4.011064	0.0039
R-squared	0.990408	Mean dependent var	9.583571	
Adjusted R-squared	0.984414	S.D. dependent var	0.214175	
S.E. of regression	0.026739	Akaike info criterion	-4.107878	
Sum squared resid	0.005720	Schwarz criterion	-3.833996	
Log likelihood	34.75514	F-statistic	165.2121	
Durbin-Watson stat	1.973486	Prob(F-statistic)	0.000000	

Source: E-Views 7.0

### Appendix 9: Guinea Bissau

Dependent Variable: RGDP

Method: Least Squares

Date: 02/29/16 Time: 15:53

Sample(adjusted): 2001 2013

Included observations: 13 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MANGDP	0.934282	0.230723	4.049372	0.0049
FDI	0.069959	0.043693	1.601142	0.1534
EXCR	1.018917	0.687137	1.482844	0.1817
INTR	-0.000459	0.000839	-0.547826	0.6008
INFR	0.010878	0.004889	2.224971	0.0614

C	-1.808189	3.629320	-0.498217	0.6336
R-squared	0.931411	Mean dependent var		8.826923
Adjusted R-squared	0.882419	S.D. dependent var		0.144533
S.E. of regression	0.049560	Akaike info criterion		-2.867213
Sum squared resid	0.017194	Schwarz criterion		-2.606467
Log likelihood	24.63688	F-statistic		19.01152
Durbin-Watson stat	1.504904	Prob(F-statistic)		0.000604

Source: E-Views 7.0

### Appendix 10: Togo

Dependent Variable: RGDPT

Method: Least Squares

Date: 02/29/16 Time: 16:02

Sample: 2000 2013

Included observations: 14

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RGDP2	0.545669	0.287290	1.899366	0.0993
MANGDP	20.59204	17.86963	1.152349	0.2870
FDI	1.441369	2.339891	0.615998	0.5574
EXCR	25.78667	26.40374	0.976629	0.3613
INTR	1.348549	1.139290	1.183674	0.2752
INFR	-0.075637	0.303420	-0.249283	0.8103
C	-258.7163	214.6040	-1.205552	0.2672
R-squared	0.611579	Mean dependent var		8.688571
Adjusted R-squared	0.278646	S.D. dependent var		2.505962
S.E. of regression	2.128377	Akaike info criterion		4.655449
Sum squared resid	31.70992	Schwarz criterion		4.974978
Log likelihood	-25.58815	F-statistic		1.836945
Durbin-Watson stat	2.450548	Prob(F-statistic)		0.222276

Source: E-Views 7.0

## IMPACT OF INFLATION ON UNEMPLOYMENT IN NIGERIA (2001-2013)

Gylych JELILOV Ph.D.

Nigerian Turkish Nile University, Department of Economics

Email: [jelilov@ntnu.edu.ng](mailto:jelilov@ntnu.edu.ng)

Olanrewaju Joseph OBASA

Nigerian Turkish Nile University, Department of Economics

Email: [lanruzel@yahoo.com](mailto:lanruzel@yahoo.com)

### Abstract

The Impact of Inflation on Unemployment in Nigeria (2001-2013). The study set three major objectives which include determine the relationship between economic growth, inflation and unemployment, analyses the effects of inflation in Nigeria and assess the effects of unemployment in Nigeria. Secondary data obtained from National Bureau of Statistics, Central Bank of Nigeria and Federal Ministry of Labour and Employment was used for the paper . The study used a model in which inflation and unemployment were the dependent variable and independent variables. The analytical technique used includes Ordinary least square (OLS) technique, F-test. The paper showed that monetary and fiscal policy were effective in the control of the inflation and unemployment since the coefficient of determination ( $R^2 = 0.50$  or 50% was significant. This was re-confirmed by the F-test value (4.91). The paper recommends a policy redirection to improve output; this will occur by making efforts to increase productivity, which will lead to reduction in unemployment and inflation. To curb the surging rate of unemployment, efforts must be put in place to achieve a labour intensive method of production instead of concentrating on the capital intensive method which will take away jobs that individuals can do.

Furthermore, there must be concrete efforts to ensure our porous borders are well managed to forestall leakages, which is very pivotal for the reduction of unemployment and inflation; thereby improving the level of local production.

**Key Words:** Inflation, Unemployment, Development, Nigeria

### INTRODUCTION

The economic and political landscape of any country hinges on inflation and unemployment because of the changes it can ignite in the system. Actually among the two, the tradeoff is curtailed. Therefore, on the longrun no tradeoff will occur; thus, they both may now move in the same direction; however this may not occur at the same time (Wallich, 1979).

Overtime, economists have tried to establish the relationship between inflation and unemployment; however these two variables are linked together economically. The relationship that exist between them are inversely correlated; therefore when unemployment is high, inflation is low and otherwise (Umaru & Zubairu, 2012).

In any economy, inflation and unemployment are always on the “front burner”; all economies will always intend to keep them both on a low rate mostly on a single-digit rate because this will tend to bring about stability in the macroeconomic policies of the country. This stability is pivotal to effectively achieve growth and development in the economy and also the attainment of its set out goals and objectives of its economic policies (Orji, Orji-Anthony, & Okafor, 2015).

When money supply is altered, this in turn leads to inflation. Therefore, when money supply is increased, it will have a multiplier effect on the price of goods and services in the economy which will lead to its increase also. Hence, inflation is the upward movement in the prices of goods and services. The classical economist defined the long term Phillips curve to be the natural rate of unemployment in an economy. It states that on the long run, inflation and unemployment are not meant to have a relationship (Phillips, 1958)(Friedman, 1968).

Therefore, if employment rate is less than the natural rate, thus inflation rate will exceed the limits of expected rate and therefore the unemployment rate is higher than the acceptable limit, therefore the inflation rate will be less than the expected rate (Phillips, 1958) (Friedman, 1968).

Inflation as explained by the Keynesian implies the supply of money that keeps rising. They focus mainly with institutional crises that people face, when the industries raise the prices of goods and services. Industries make significant yields when they increase the prices of their goods and services. Furthermore, the Central Bank increases the supply of money to ensure the continuous functionality of the economy (Phillips, 1958)(Friedman, 1968).

Inflation and unemployment are very critical to the economic growth and development of any economy. These two (2) factors are mainly used to examine the level of poverty in developing economies. Therefore, countries are encouraged to continually increase their level of produce because this will help to cushion the effect of inflation in the economy. Also, increase in the level of goods and services will improve the standard of living and therefore create social harmony within the country.

The inflation rate in the economy of Nigeria has in recent years been fluctuating mainly due to the inconsistencies in the Real Gross Domestic Product (RGDP) (CBN, 2004). Also, other economic indicators such as unemployment rate are indicators of an ailing economy; this study is conducted to examine the impact of inflation on unemployment in Nigeria.

The precise purpose of the study is to empirically examine the impact of unemployment and inflation on economic growth in Nigeria.

The precise purposes are:

- (i) Determine the relationship between economic growth, inflation and unemployment.
- (ii) Analyses the sources and outcome of inflation in Nigeria.
- (iii) Assess the sources and outcome of unemployment in Nigeria.

## **LITERATURE REVIEW**

### *The Concept of Inflation and Unemployment*

The empirical macroeconomists find inflation and unemployment as essentially challenging and therefore a lot of studies have been conducted in more advanced countries. Some suggestions arise on if possible to stabilize without recession. Also, some models have suggested that stabilization might be expansionary especially in countries where high inflation is prevalent. However, stabilization without recession is most likely unachievable (Kamin & Klau, 1998).

Inflation is well known to be a situation in the economy when the money supply is growing faster than the production of new goods and services in the same economy (Hamilton, 2001). Inflation is further defined to be the general price increase in goods and services over a particular time mainly for a long period (Balami, 2006).

Arguments have occurred among economists in trying to distinct Inflation from an economic occurrence which result in price increase of goods and services at a certain time or when there is an upward movement in prices of economic goods and services in a specific slender group (Piana, 2001).

The International Labour Organization (ILO) defines the unemployed as those relevant population in the economic activities among the entire populace that are willing to work but have no work. This also comprises of those who left work willingly (World Bank, 1998).

The main sources of inflation and unemployment are namely fiscal and monetary policies and balance of payment. An increase in money supply leads to monetary policy inflation, while fiscal policy involves mainly budget deficits. Also, fiscal policy inflation is closely knitted to the explanation given above on monetary policy inflation because money creation is mostly used to finance government deficits. Furthermore, on the aspect of balance of payment policies; high exchange rate is very essential. This is so because a rise in exchange rate leads to increase in import prices and also increases inflationary expectations which therefore causes inflation (Umaru, Donga, & Musa, 2013).

The Phillips curve is divided into some assumptions: the negative, the natural hypotheses and the positive hypothesis. The explanation of the link between inflation and unemployment has gone through some phases since the conclusion of World War II. The first phase was the assent of the Phillips hypothesis (Friedman, 1976).

Phillips discussed that there was a consistent negative link between the level of unemployment and the rate of changes in wages. The reduction in wages is associated with high levels of unemployment while increase in wages is associated with low level of unemployment. The change in wages is associated to changes in prices of goods and services by allowing for a rise in the level of productivity and treating the price excesses over wage cost through a consistent mark-up factor (Phillips, 1958) (Friedman, 1976).



A research was conducted on inflation and unemployment in the EU for 1998-2007; it was established that the simple linear correlation coefficient between inflation and unemployment is negative. Invariably, it leads to the conclusion that their relationship is not excessive and negative (Popovic & Popovic, 2009).

Another research was conducted using Nigeria's economic situation to examine the trade-off between inflation and unemployment in less developed economies. OLS model was used and it was observed that there was no trade-off between the two factors. This further showed a case of stagflation in the economy of Nigeria (Abachi, 1998).

Also, there was a test on the connection between money, inflation and output through the usage of cointegration and granger-causality test analysis. The research showed that there was non-availability of a cointegrating vector in the series used. Granger concluded that money supply causes output and inflation. This therefore ascertains that monetary policy has a major input on price stability in the economy of Nigeria simply because the variation in price level is majorly influenced by money supply. Therefore, inflation in the economy is mainly a monetary issue (Omoke & Ugwuanyi, 2010).

Inflation has grievous effect especially on fixed incomes in an economy, this has drastic effect on their standard of living due to reduction in real income, savings and capital formation (Buhari, 1987). Economic growth is drastically affected by inflation and therefore limits economic development in a country, this leads to the creation of unrest among the populaces (Adamson, 2000).

## **METHODOLOGY**

### **Study area**

This will cover the Federal Republic of Nigeria, an african country which is on the Gulf of Guinea. The Country is the most populated black nation in the World with a population of about 180 million people. It comprises of 36 states and the capital is Abuja. The country is a major oil producer and its economy mainly depends on it.

### **Method of data collection**

This study made use of secondary data from National Bureau of Statistics (NBS), Central Bank of Nigeria (CBN) and Federal Ministry of Labour and Employment.

### **Method of data Analysis**

The Model analysis was conducted using the Ordinary Least Square (OLS) regression. Data on inflation and unemployment rate was used for the estimation of parameters of the Model. The coefficient of determination ( $R^2$ ), T-test, F-test and Durbin Watson (DW) statistics were used. Also, to confirm the level of serial correlation among variables, Durbin Watson statistics was used.

**Linear Regression model**

This study made use of model from Okun’s to integrate inflation and unemployment as the dependent and independent variables. While economy growth is influenced by increase in productivity. The reduced form of the Phillips assumption is the Okun’s law.

The model is explained as:

$$UNEMPL = f(INFLA) \dots \dots \dots (1)$$

$$\text{Hence, } UNEMPL = \alpha + \beta INFLA + \mu \dots \dots \dots (2)$$

Where INFLA is the inflation rate and UNEMPLO is unemployment rate.

$\alpha$  and  $\beta$  - Parameters

$\mu$  - Error term (white noise)

**A’ priori expectation**

It is anticipated that:  $\alpha > 0, \beta > 0$

**Model II (Granger causality model)**

$$UNEMPL = \sum \alpha UNEMPL_{t-1} + \sum \alpha INFLA_{t-1} + \mu_t \dots \dots \dots (3)$$

**Decision rules**

The decision rule under causality models for equation (3) is to test for null hypothesis to know that the estimated coefficients are equal to zero(0) at an appropriate level of significance or to make use of the rule of thumb that if t-statistic is at least 2 the null hypothesis is rejected otherwise accepted. Therefore, Equation (2) INFLA causes UNEMPL if  $H_0: = 0$  is rejected.

Therefore, if the estimates of the parameter come up with signs or sizes that do not go in accordance to economic assumptions, hence should be rejected, otherwise if there is a good reason to accept that in the particular instance, the principles of economic assumptions do not stand.

$$UNMPL = F(X) + U_t \dots \dots \dots (4)$$

Where

UNMPL = Unemployment rate (Y)

X = Inflation rate (X)

$U_t$  = Stochastic (error) variable

In model above, where the unemployment is the dependent variable and Inflation is the independent variable.

$$UNMPL = F(X) + U_t \dots \dots \dots (5)$$

UNMPL = Dependable (Y)

INFLA = Independent (X)

$$UNEMPL = 1.97 + 0.017INFL + U_t \dots \dots \dots (6)$$

(3.934)            (0.061)

T-statistics are in parenthesized

$R^2 = 0.0037$     Adjusted  $R^2 = -0.0905$



2005	1.06	1.08
2006	0.93	1.09
2007	0.82	1.10
2008	1.18	1.17
2009	1.08	1.29
2010	1.08	1.33
2011	1.03	1.38
2012	1.11	1.44
2013	0.95	1.39

Source: Researcher's own computation

**Table 3: Unit Root Test**

Variables	Level	5% Critical Value	Status
Inflation Rate	-4.416711	-3.2695	2(1)
Unemployment Rate	-3.875793	-3.2195	2(0)

\*\* levels of Significant at 1%, 5% and 10% respectively

**Table 4: Regression Result of  $UNEMPL = 1.97 + 0.017INFL + U_t$**

Dependent Variable: UNEMPLOYMENT RATE

Method: Least Squares

Date: 01/28/16 Time: 14:22

Sample: 2001-2013

Included observations: 13

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INFLATIONRATE	0.017167	0.281917	0.060894	0.9525
C	1.197003	0.304245	3.934335	0.0023
R-squared	0.000337	Mean dependent var		1.215385
Adjusted R-squared	-0.090541	S.D. dependent var		0.131061
S.E. of regression	0.136865	Akaike info criterion		-0.998999
Sum squared resid	0.206054	Schwarz criterion		-0.912084
Log likelihood	8.493493	F-statistic		0.003708
Durbin-Watson stat	0.183094	Prob(F-statistic)		0.952536

Source: E-views 7.0

**Table 5: Regression Result of  $UNEMPL = 1.06 + 0.108UNEMPLO_{t-1} + 0.031INFLA_{t-1} + U_t$**

Dependent Variable: UNEMPLOYMENT RATE

Method: Least Squares

Date: 01/28/16 Time: 14:40

Sample: 2001 2013

Included observations: 13

Variable	Coefficient	Std. Error	t-Statistic	Prob.
UNEMPLOYMENT <sub>t-1</sub>	0.522948	0.172783	3.026623	0.0128



This study emphasises on the impact of inflation on unemployment (2001-2013). The dependent and independent variables used were macroeconomic indicators which are inflation and unemployment.

The observation from this study showed that both unemployment and inflation have positive influence on economic growth. This further explains that unemployment does not impactfully affect the economic growth of the country, rather inflation significantly improve the activities of the economy through growth in the per capita income.

## RECOMMENDATIONS

The result from this study mainly implies that concrete effort should be made by the policy makers to improve the level of productivity in the Nigerian economy to ensure a creation of more job opportunities and activities in the economy which will therefore lead to a reduction in unemployment and the prices of commodities in the economy. This effort will thus improve and increase economic activities in the country at large.

Furthermore, emphasis should be made to curb the surging rate of unemployment by making dedicated efforts to put in place labour intensive method of production instead of concentrating on capital intensive methods which will eliminate jobs that can be done by individuals. Finally, there must be concrete efforts to ensure that our porous borders are well managed to forestall leakages which is very pivotal for the reduction of unemployment and inflation; thereby improving the level of local production.

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## ANALYSIS OF THE IMPACT OF NON-OIL EXPORTS ON ECONOMIC GROWTH IN NIGERIA ECONOMY: 1980-2013

<sup>1</sup>Marvelous I. Aigbedion, <sup>2</sup>Prof. Sarah O. Anyanwu <sup>3</sup>Dr. Michael Jimaza, <sup>4</sup>Dr. Obida Gobna Wafure

[1marvelousaigbedion@gmail.com](mailto:marvelousaigbedion@gmail.com), [2sarahanyanwu2003@yahoo.com](mailto:sarahanyanwu2003@yahoo.com), [3michaeljimaza@yahoo.com](mailto:michaeljimaza@yahoo.com), [4 gobna@yahoo.com](mailto:gobna@yahoo.com)

1, 2, 3, 4 Department of Economics, PMB, 117, University of Abuja

### ABSTRACT

*This paper examines the impact of non-oil exports on economic growth in Nigeria from 1980-2013. The study used time series data and econometrics tools were used for testing for the stationarity, causality and co-integration. To show the long run and short run impact and the relationships among the variables Ordinary Least Squares (OLS) and Error Correction Model (ECM) were adopted. The OLS regression result shows that there is a positive relationship between non-oil exports and economic growth in Nigeria at the long run. While the ECM result shows that there is a short run impact of non-oil exports on economic growth in Nigeria. This implies that non-oil sectors have the potency for sustainable economic growth in Nigeria. The result also showed that non-oil sectors activities like agriculture, manufacturing, tourism and communication have strong and positive on economic growth in Nigeria. From the study these non-oil sectors have been neglected for so long in Nigeria especially agriculture, manufacturing and tourism. Obviously, the high rate of poverty and hunger in Nigeria may be attributed to this policy and structural imbalance and government have so much attention to the oil sector mean while the growth of the wealth in the oil sector is not evenly or widely distributed among the population but in the hands of few people. Therefore, this paper recommends that the Nigerian government should as a matter of urgency formulate and adopt economic policies that will promote diversification of the real sector. More emphasis should be laid on the production of manufactured goods, agriculture and tourism in order to reduce poverty and have a sustainable economic growth in Nigeria.*

**Keywords:** Non-Oil, Exports, Economic Growth, Diversification, Government

### INTRODUCTION

Nigeria's quest for market access in the global market for her non-oil merchandise has led to the signing of trade preferential agreements with different countries and regions. Apart from signing bilateral agreements with Benin Republic, Bulgaria, Equatorial Guinea, Jamaica, Niger, Romania, Turkey, Uganda and Zimbabwe, investment promotion and protection treaties have also been signed with France, Switzerland, the United Kingdom, the Netherlands, North Korea, China and Turkey. Nigeria is one of the founding members of the World Trade organization (WTO), the body that is charged with the responsibility of removing all barriers to trade between the nations of the world such that the whole world becomes "one big global market".

It is a known fact that the speed of development depends on the resource mobilization especially, finance. For a country to attain growth and the development of the economy has to be diversified, that is, there should be simultaneous development of the various sectors instead of practicing mono-culturalism. The expansion of export base is of tremendous importance to the overall development of the economy. In 60s, for oil export country like that of Nigeria, the problem according to the government of Nigeria was how to spend the revenue accruing to country not the generation of the revenue Okunnu, (2009). There is no doubt that petroleum has contributed substantially to the export revenue in Nigeria and other non-oil exporting countries especially when prices were on the upward trend. Experiences over the years indicate, however, that supply as well as demand limitations make the continuation of large earnings from the petroleum unlikely. There is therefore, the need for strategies and policies for the diversification of the Nigeria revenue base.

Despite the activities of the World Trade Organization (WTO) and the liberalization that resulted from the Structural Adjustment Programme (SAP) of the mid 1980s, the value of Nigeria's non-oil exports has dwindled from an average of 7% of total export in 1970-1985 to 4% in 1986-1998. It is bewildering to find that the non-oil exports declined in the period of greatest openness (Okoh, 2004). The need for expansion of Nigeria's non-oil exports is predicated on the fact that crude oil, which is Nigeria's main source of foreign exchange, is an exhaustible asset and cannot be relied on for sustainable development.

Although various factors have been adduced to Nigeria's poor economic performance, it is pertinent to say that the major problem has been the economy's continued excessive reliance on the fortunes of the oil market and the failed attempts to achieve any meaningful economic diversification (Osuntogun *et. al*, 1997), reflecting the effect of the so called "Dutch disease". The need to correct the existing structural distortions and put the economy on the path of sustainable growth is therefore compelling. This raises the question of what else need to be done in order to diversify the economy and develop the non-oil sector in order to realize the potentials of the sector.

There was a shortfall of more than 45 percent in the expected revenue from oil. There is still no hope that oil prices will witness a better fortune in the years ahead. It should be recalled that, the diversification of the economy away from oil and enhancing productivity growth in a stable macroeconomic environment were at the centre of Nigeria's Structural Adjustment Programme (SAP) adopted in 1986. It is regrettable that more than 15 years after, there has not been any perceptible improvement in this economic malaise, as the oil sector still contributed 91.9 per cent to total export earnings and 76.5 per cent of total government revenue in 2001 (Adedipe, 2004).

Characterized by low output growth, high unemployment rate and rising inflation, the Nigerian economy has continued to perform below its potentials, especially in recent years. The economy remains extremely vulnerable to external shocks, particularly the vicissitude of world oil market prices. The continued unimpressive performance of the non-oil sector and the vulnerability of the external sector thus dictates the urgent need for a reappraisal of the thrust and contents of Nigeria development policies and commitments to their

implementation. Therefore, this paper is to examine the impact of non-oil exports on economic growth in Nigeria.

## **2.0 LITERATURE REVIEW**

### **2.1 Stylize Facts about Non-Oil Exports in Nigeria**

Agricultural products constitute the bulk of Nigeria's non-oil exports. The shares of these products both processed and unprocessed in total value of non-oil exports is as high as 70 per cent. Other components of the non-oil exports include manufactured products and solid minerals. The agricultural products include cocoa, groundnut, palm produce, rubber (natural), cotton and yarn, fish and shrimps, while the manufactured products and solid minerals include processed agricultural products, textiles, tin metal, beer, cocoa butter, plastic products, processed timber, tyres, natural spring water, soap, detergent and fabricated iron rods. The non-oil commodities market experienced an export boom between 1960 and 1970.

Their fortunes declined in the early 1980s when the international primary commodity markets collapsed with the associated deterioration in the terms of trade. Resulting mainly from the policies adopted during the structural adjustment programme, non-oil exports increased owing mainly to increase in the Naira price of the export commodities. This was, however, short-lived as international demand for Nigeria's non-oil exports remained weak (Okoh, 2004). The value of non-oil exports has been on the decline ever since. For instance, the share of agricultural products in total exports declined from 84% in 1960 to 1.80% in 1995 (CBN, 2000, Ogunkola and Oyejide 2001). Thus, contrary to the expectation of increase in non-oil exports, there was an overall decline in the export of these commodities. Manufactures decreased from 13.10 % in 1960 (CBN, 2000) to 0.66% in 1995 and remained the same in 2002 (WTO, 2010). The 2009 the non-oil exports account for #289152.6 million (WTO, 2010).

### **2.2 Empirical Review on Non-Oil Export and Economic Growth in Nigeria**

Vohra (2001) showed the relationship between export and growth in India, Pakistan, the Philippines, Malaysia, and Thailand for 1973 to 1993. The empirical results indicated that when a country has achieved some level of economic development than the exports have a positive and significant impact on economic growth. The study also showed the importance of liberal market policies by pursuing export expansion strategies and by attracting foreign investments. Subasat (2002) investigate the empirical linkages between exports and economic growth. The analysis suggested the more export oriented countries like middle-income countries. The study also showed that export promotion does not have any significant impact on economic growth for low and high income countries.

Balaguer (2002) examined the hypothesis of export-led growth from the Spanish trade liberalization process initiated four decades ago, for 1961 to 200 both the export expansion and the progression from "traditional" exports to manufactured and semi-manufactured export is considered for this purpose. It is proved that the structural transformation in export composition has become a key factor for Spain's economic development along with the relationship between exports and real output. Amvilah (2003) determined the role of exports

in economic growth by analyzing Namibia's data from 1968 to 1992. Results explained the general importance of exports, but find no discernible sign of accelerated growth because of exports.

Lindauer (2001) stated that ten percent increase in exports cause one percent increase in GDP in the 1990s in china on the basis of new proposed estimation method, when both direct and indirect contributions are considered. Ekanyanke et al. (2003) writes that early studies supporting the ELG hypothesis such as those by Balassa (1985), examined the simple correlation coefficient between export growth and economic growth, and based their conclusions based upon the high degree of collation between the two variables. Maizzls, Pearson and Fitch (2004) limited their study to eleven Latin-American countries. They employed a single equation model and discovered that export earnings appear to make a remarkable impact on the growth of output.

Shirazi and Manap (2004) studied the short run and long run relationship among real export, real import and economic growth on the basis of co-integration and multivariate Granger causality developed by Toda Yamamoto (1995) for the period 1960-2003. This study showed a long-run relationship among import, export and economic growth and found unidirectional causality from export to output while did not find any significant causality between import and export. Mah (2005) studied the long-run causality between export and growth with the help of significance of error correction term; this study also indicated that export expansion is insufficient to explain the patterns of real economic growth.

Tang (2006) stated that there is no long run relationship among export, Gross Domestic Product and Imports. This study further shows no long run and short causality between export expansion and economic growth in china on the basis of Granger causality while economic growth does Granger-cause imports in the short run. Jordan (2007) analyzed the causality between exports and GDP of Namibia for the period 1970 to 2005. The hypothesis of growth led by export is lest through Ganger causality and co-integration. It tests whether there is uni-directional or bi-direction causality between export and GDP. The result revealed that exports Granger cause GDP and GDP per capita and suggested that the export led growth strategy.

Through various incentives has a positive influence on growth hypothesis in three countries by using panel data analysis. It is concluded that there is no significant relationship between the size on national income and amount of export for these countries on the basis of one -way random effect model. The panel unit root test shows that the process for both GDP and Export at first difference is not stationary while the panel co-integration test indicates that there is no co-integration relationship between the export and economic growth for these countries.

Therefore, for the development strategies of Nigerian, the achievement of causality has an important policy implication. In the sense that the import led growth strategy is appropriate for the country if export growth causes export growth (export  $\rightarrow$  GDP), but if economic growth causes export growth (GDP  $\rightarrow$  export) then a certain level of economic growth may be a prerequisite to extend its exports Offomah (2009) concentrated her study on the impact of oil revenue on economic growth performance in Nigeria within the period 1970-2006. A

multiple regression analysis was employed to capture the influence of oil revenue on GDP and also determine the trend effect, that is, the effect of time as variable. The results revealed a positive relationship between the variables.

On the side of non-oil exports not much of empirical studies have been done but we examine some literatures on the need for export diversification. Export trade is an instrument for growth. It increases foreign exchange earnings, improves balance of payment position, creates employment and development of export oriented industries in the manufacturing sector and improves government revenue through taxes, levies and tariffs. These benefits will in turn enhance the process of growth and development in such economy. However, before these benefits can be fully realized, the structure and direction of these exports must be carefully tailored such that the economy will not depend on only one sector for the supply of needed foreign exchange (Onayemi & Akintoye, 2009). Hence, there is a need for economic diversification in the economy.

### **2.3 Theoretical Framework**

The theoretical framework support for export promotion strategy can be found in Hecksher - Ohlin factor endowment trade theory. According to the theory, countries are endowed with different factor suppliers, resulting in relative factor prices. (E.g. Labour abundant countries) and so on too will domestic commodity price ratios and factor combinations. Countries with cheap labour will have a relative cost and price advantage over countries with relatively expensive labour in commodities that makes intensive use of labour e.g. primary products. They should therefore focus on the production of these labour intensive products and export the surplus in return for imports of capital intensive goods.

Conversely, countries well-endowed with capital will have a relative cost and price advantage in the production of manufactured goods, which tend to require relatively large inputs of capital compared with labour. They can thus benefit from specialization in and export of capital-intensive manufactured goods in return for imports of labour-intensive products from labour-abundant resources through more intensive production and export of commodities that require large inputs of those resources while relieving its factors shortage through the importation of commodities that use large amounts of its relatively scarce resources.

Islam (2002) also adopted this model while studying the relationship between export and growth in six Asian countries adopted a model formulated from the Hecksher- Ohlin factor endowment trade theory, to him, the major non-oil export is the agricultural products which have a larger share in GDP of Nigeria economy and labour intensive will have great impact on the Non-oil Export, Capital Stock in the Non-Oil Export Sector and Labour Force in the Non-Oil Export Sector were include in the model because they are the determinant of export.

## **3.0 METHODOLOGY**

### **3.1 The Ordinary Least Squares (OLS) Model Specification**

The model of this study was adopted from the work of Izani (2002), this model while

studying the relationship between Non-oil export and growth in six Asian countries. The model is expressed as:

$$GDP = F(NOE, CASNON, LFNON) \quad 3.1$$

From equation 3.1 Gross Domestic Product is a function of Non-Oil Export, Capital Stock in the Non-Oil Export Sector and Labour Force in the Non-Oil Export Sector. Equation 3.1 which is put into a log form is expressed in form of econometric analysis.

$$\ln GDP = a_0 + a_1 \ln NOE + a_2 \ln CASNON + a_3 \ln LFNON + V_t \quad 3.2$$

Where:  $\ln$  is the Natural log of the variables, GDP is the gross domestic product in Nigeria, NOE is the Non-oil sector export, CASNON is the capital stock in the non-oil export sector and LFNON is the labour force in the non-oil export sector. While  $a_0$  is the parametric constant,  $a_1$ ,  $a_2$ , and  $a_3$ , are regression coefficients and  $V_t$  is the Error term. The *a priori* expectations of the explanatory variables used in this study are expected to bear the following signs ( $a_1 > 0$ ,  $a_2 > 0$ , and  $a_3 > 0$ ) this implies that the explanatory variables in use are expected to have positive signs and have positive impact on the Gross Domestic Product.

### 3.2 The Error Correction Model (ECM)

The formulation of Error Correction Model (ECM) starts with the basic structure of Error Correction Model (ECM) which is stated as:

$$\Delta Y = \alpha + \beta X + \beta \Delta X_{t-1} - \beta EC_{t-1} + \varepsilon_t \quad 3.3$$

Where:

$\Delta Y$  is the output that is Gross Domestic Product which is used as a proxy for economic growth in Nigeria. The  $\beta X$  presents the five endogenous variables i.e. (NOE, CASNON, LFNON) which are NOE which is the Non-Oil Sector Export, CASNON which is the Capital Stock in the Non-Oil Export Sector and LFNON which is the Labour Force in the non-oil export sector and  $\beta \Delta X_{t-1}$ , this present the lag (period one) of the variables.

To formulate Error Correction Model (ECM), it will begins with the Ordinary Least Squares (OLS), the Ordinary Least Squares for multiple model is formulated as follows:

$$GDP = \alpha + \beta_1 NOE + \beta_2 CASNON + \beta_3 LFNON + U \quad 3.4$$

From the equation above the over parameterized model is formulated as follows:

$$GDP = \alpha + \beta_1 NOE + \beta_2 CASNON + \beta_3 LFNON + \beta NOE_{t-1} + \beta CASNON_{t-1} + \beta LFNON_{t-1} + \beta NOE_{t-2} + \beta CASNON_{t-2} + \beta LFNON_{t-2} + \beta X_{t-3} + \dots + \beta X_{t-n} - ECM_{t-1} + \varepsilon_t \quad 3.5$$

The over parameterized model was 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.

### 3.3 Sources and Methods of Data Analysis

The study adopted time series data and these data were sourced from Central Bank of Nigeria online databank. The Ordinary Least Squares (OLS) was used to estimate the multiple regression model and this was used to establish the long run impact among the economic



variables. The Error Correction Model (ECM) was used to estimate the over-parameterize model to determine the short run impact of the variables. Also, econometrics tools were used for stationarity test, causality test and co-integration test and E-views version 7.0 was used to process the data.

#### 4.0 DATA PRESENTATION AND ANALYSIS

##### 4.1 Presentation of Data

Table 4.1 in appendix I shows the data for regression which are the variables needed for estimation of the stated model, the variables are Gross Domestic Product, Non-oil Export, and Capital Stock in the Non-Oil Export Sector and Labour Force in the Non-Oil Export Sector.

##### 4.2 Results of Stationarity Test

Table 4.2 shows the result of the Augmented Dickey-Fuller (ADF) unit root test

Variables	Adf Statistic	5% Critical Value	Order of interpretation
GDP	-4.23445	-2.8928	1(1)
NOE	-3.77247	-2.9798	1(1)
CASNON	-3.30419	-2.9750	1(0)
LFNON	-4.12389	-2.9850	1(2)

**Source: Author's Computation, 2016**

From the Table 4.2, the Real Gross Domestic Product in Nigeria is stationary at first difference with ADF statistic value of -4.23445 at 1 percent, Non-oil export is stationary at second difference with ADF value of -3.77247 at 5 percent, Non-oil capital stock is stationary at second difference with ADF value of -3.30419 and Labor force is stationary at first difference with ADF value of -4.12389 at 1 percent.

##### 4.3 Granger Causality Test

**Table 4.3: Pairwise Granger Causality Tests**

Null Hypothesis:	Obs	F-Statistic	Probability
NOE does not Granger Cause GDP	31	13.2072	0.00011
GDP does not Granger Cause NOE		3.48831	0.06550
CASNON does not Granger Cause GDP	31	0.24657	0.78328
GDP does not Granger Cause CASNON		0.34854	0.70896
LFNON does not Granger Cause GDP	31	0.04112	0.95978
GDP does not Granger Cause LFNON		0.01994	0.98027
CASNON does not Granger Cause NOE	31	0.14929	0.86205
NOE does not Granger Cause CASNON		0.46855	0.63109
LFNON does not Granger Cause NOE	31	0.01833	0.98185
NOE does not Granger Cause LFNON		0.03587	0.96482
LFNON does not Granger Cause CASNON	31	0.01716	0.98300
CASNON does not Granger Cause LFNON		7.73703	0.00231



**Source: E-Views 7.0 output**

From the Pairwise Granger Causality test, there is causer relationship among the variables in use, they were found to have causer relationship and that Gross Domestic Product Granger cause Non-oil Export, Gross Domestic Product granger cause Capital Stock in the Non-Oil Export Sector and Gross Domestic Product granger cause Labour Force in the Non-Oil Export Sector. From the result Non-oil Export does not Granger cause Gross Domestic Product and Capital Stock in the Non-Oil Export Sector does not granger cause Labour Force in the Non-Oil Export Sector.

**4.4 Presentation and Discussion of OLS Results****Table 4.4: Showing OLS Regression Results**

VARIABLES	COFFICIENT	STANDARD ERROR	T-STATISTICAL	PROB.
InC	3.694204	8.584784	0.430320	0.6706
InNOE	0.2096	0.1252	1.6744	0.0060
InCASNON	-0.0307	0.3470	-0.0886	0.9301
(D)InLFNON	0.1607	0.0613	2.6216	0.0144
R-SQUARE	0.780			
ADJ R-SQUARE	0.737			
F-STATISTIC	18.45499			
D-W STATISTIC	2.00			
PROB	0.00000000			

**Source: Author's Computation from E-views software 7.0**

The results above suggest that summation of Non-Oil Export, Capital Stock in the Non-Oil Export Sector and Labour Force in the Non-Oil Export Sector have positive impacts on Nigerian economic growth, given the value of coefficient of determination ( $R^2$ ) of 0.78, the aggregation of the independent variables in the model accounted for about 78 percent of the total variation in gross domestic product in Nigeria, meaning that 78 percent changes in gross domestic product in Nigeria is caused by a change in the independent variables in the model above. Also, the Adjusted Coefficient of Determination (Adjusted  $R^2$ ) of 73 percent suggests that a change in Gross Domestic Product in Nigeria is caused by a change in the independent variables in the model, the independent statistically significant in determining the total variation in Gross Domestic Product in Nigeria.

The F-statistic suggest that the model employed in the study is statistically significant given the value as 18.45, meaning that at 5 percent level of significance, the equation in use is statistically significant that is useful in explaining a unit change in Gross Domestic Product in Nigeria. From the result above it is evident that Non-Oil Export has significant impact on Gross Domestic Product, having a positive relationship with Gross Domestic Product in Nigeria. The value of its coefficient shows that Non-Oil Export is positively related to Gross Domestic Product.

Capital Stock in the Non-Oil Export Sector was found to be negatively related to Gross Domestic Product in Nigeria. This implies that Capital Stock in the Non-Oil Export Sector

has a negative impact on the economic growth in Nigeria. Any change in the Capital Stock in the Non-Oil Export Sector will cause decrease in Gross Domestic Product in Nigeria. Finally, Labor Force in the Non-Oil Export Sector was found to be positively related to Gross Domestic Product in Nigeria, meaning that it has positive impact on the Gross Domestic Product in Nigeria and a unit increase in Labor Force in the Non-Oil Export Sector will cause 0.016 percent change in Gross Domestic Product in Nigeria.

#### 4.5 Error Correction Model Results

**Table 4.5: Error Correction Model Results**

Variables	Coefficient	Std. Error	T- statistic	Prob.
C	-6.658571	4.557469	-1.461024	0.1581
LOG(LFNON)	1.813364	0.421581	4.301342	0.0003
D(LOG(NOE(-1)))	-0.485699	0.204625	-2.373607	0.0268
D(LOG(LFNON(-1)))	-1.704872	2.129341	-0.800657	0.4319
ECM(-1)	-4.466807	8.411607	-0.530379	0.0312
R-Squared	0.58			
Adjusted R <sup>2</sup>	0.51			
F-statistic	7.69			
DW	1.98			

**Source: Generated by the Author (2016)**

The error correction model in Table 4.6 show that the coefficient determination ( $R^2$ ) is 0.64, which indicates that about 64 percent of the systematic variation in the Real Gross Domestic Product (RGDP) growth rate is accounted for by the variables taken together. The F-value of 9.79 is significant at 1 per cent level of significance, which further suggests a linear relationship between the Gross Domestic Product (GDP) and Non-Oil Export, Capital Stock in the Non-Oil Export Sector and Labour Force in the Non-Oil Export Sector in Nigeria. While the D.W. statistics of 2.0 rules out auto-correlation.

From the result, the Labour Force in the Non-Oil Export Sector in Nigeria was found to be positively related to Gross Domestic Product (GDP) and the variable was statistically significant in explaining any variation in the Gross Domestic Product (GDP) at the short-run in Nigeria. This implies that any change in Labour Force in the Non-Oil Export Sector in Nigeria will cause 1.8 percent change in the Gross Domestic Product (GDP) in Nigeria. On the other hand Non-Oil Export at lag one and Labour Force in the Non-Oil Export Sector at lag one were found to be negatively related to Gross Domestic Product (GDP) and Non-Oil Export at lag one was statistically significant in explaining any variation in the Gross Domestic Product (GDP) at the short-run in Nigeria, while Labour Force in the Non-Oil Export Sector at lag one was found to be statistically insignificant in explaining any variation in the Gross Domestic Product (GDP) at the short-run in Nigeria.

Also, from the result the coefficient of the error correction term is -4.46 which implies that the speed of adjustment is approximately 4.86 per cent per quarter. The negative sign and significant coefficient is an indication that co-integrating relationship exists among the variables that is Gross Domestic Product (GDP) and Non-Oil Sector in Nigeria. The size of

the coefficient on the error correction term (ECT) denotes that 4.46 percent of the disequilibrium caused previous year's shock converges back to the long run equilibrium in the current year. This implies that in the short-run the Non-Oil Sector activities have fair impact on economic growth in Nigeria.

## CONCLUSION AND RECOMMENDATIONS

Based on the results of the statistics tests and econometric tests performed in this study, it becomes right to conclude that the relationship between non-oil export and economic growth in Nigeria is positive. Non-oil export has significant impact on economic growth long run and fairly impact at short run. This fair of Non-Oil Sector may be as a result of neglect of real sectors in Nigeria especially agriculture, manufacturing and tourism. Obviously, the high rate of poverty and hunger in Nigeria may be attributed to this policy and structural imbalance and government have so much attention to the oil sector mean while the growth of the wealth in the oil sector is not evenly or widely distributed among the population but in the hands of few people. Therefore, this paper recommends the following:

- i. Nigerian government should as a matter of urgency formulate and adopt economic policies that will promote diversification of the real sector. More emphasis should be laid on the production of manufactured goods, agriculture and tourism in order to reduce poverty and have a sustainable economic growth in Nigeria.
- ii. The adoption of an export led strategy in its approach to economic growth and development should be the focus of our government. This could be achieved through import substitution mechanism that would protect infant domestic industries.
- iii. Our government should borrow a leaf from the industrialized nations that have benefitted from export led programmes by adopting an export platform approach to economic growth.
- iv. As a matter of urgency, the government should provide and ensure adequate security and basic infrastructure, especially power and transport, which serves as drivers for both domestic and foreign direct investment.

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## APPENDIX I

**Table 4.1: data used for regression**

YEARS	GDP	NOE	CASNON	LFNON
1985	201036.3	497.1	56451.52	46762
1986	205971.4	552.1	55265.66	44465

1987	204806.5	2152.0	52301.42	42271
1988	219875.6	2757.4	40053.58	38322
1989	236729.2	2954.4	36534.64	36985
1990	267550.0	3259.6	34239.40	36476
1991	265379.1	4677.3	33167.86	36811
1992	271365.5	4227.8	38320.97	40777
1993	274833.3	4991.3	37696.33	41737
1994	275450.6	5349.0	36295.24	42449
1995	281407.4	23096.1	34,117.53	42907
1996	293745.4	23327.5	26919.42	40839
1997	302022.5	29163.3	24885.99	41667
1998	310890.1	34070.2	23773.76	43178
1999	312183.5	19492.9	23581.82	45383
2000	329178.7	24822.9	26803.48	51306
2001	356994.3	28008.6	27456.67	53652
2002	433203.5	94731.8	28003.80	55536
2003	47753.0	94776.4	28534.85	56862
2004	527576.0	113309.4	30583.59	54752
2005	561931.4	105955.9	30282.41	56146
2006	595821.6	133594.9	29257.07	58143
2007	634251.1	199257.9	27506.56	60721
2008	672202.6	247839.0	20802.38	66137
2009	716949.7	289152.6	19292.94	68820
2010	851734.8	205467.37	18749.74	72214
2011	972822.6	261011.81	19172.77	73372
2012	993764.8	288741.98	23253.59	75385
2013	950110.0	113020.0	27456.67	77942

Sources: Central Bank of Nigeria statistical Bulletin 2014 ([www.cbn.ng.org](http://www.cbn.ng.org))

## THE IMPACT OF GOVERNMENT EXPENDITURE ON ECONOMIC GROWTH IN NIGERIA

**Muhammad MUSA**

Nigerian Turkish Nile University, Department of Economics

Email: [muhammad.musa@ntnu.edu.ng](mailto:muhammad.musa@ntnu.edu.ng)

### *Abstract*

*This paper tries to investigate why government spending in Nigeria has failed to generate a commensurate growth rate for the economy. Time series data spanning 1981-2012 were analysed using the OLS technique. It was found that government expenditure has a positive and significant impact on economic growth. Government expenditure drives economic growth in Nigeria and the paper recommends that more of government's resources should be directed to especially capital expenditure.*

**Keywords:** Government Expenditure, Economic Growth, Recurrent and Capital Expenditures

Jel Code: E6, 01, 02

### INTRODUCTION

Nigeria is a mono- crop economy that depends heavily on revenue from the oil sector. This has affected the size of government expenditure in Nigeria over the years under review. The trend of government spending has persistently traced the boom-burst syndrome. For instance the total expenditure growth rate was 37.9% in 2008, then dropped to 6.4% in 2009 and increased to 21.5% in 2010, and then started declining from 12.3% in 2011 to -2.3% in 2012 ((CBN, 2012). The growth of the GDP on aggregate basis was 6.0 in 2008, 7.0 in 2009, 8.0 in 2010, 7.4 in 2011 and 6.6 in 2012 ((CBN, 2012)

The mismatch between the performance of the Nigerian economy and massive increase in government total expenditure over the years raises a critical question on its role in promoting economic growth and development. Government spending as argued by various scholars has significant effects on economic growth. Whenever the rate of government spending on health and education for instance increases, the outcome is higher rate of economic growth. Also, government spending on infrastructures such as road projects, transportation, agriculture, etc. attracts more investments and increases the profits of firms and incomes of individuals thereby accelerating economic growth. The government's investment in physical and social infrastructures, health care facilities, and educational institutions has significant effects on economic growth for it provides a suitable climate for investments in a country. However, some scholars contend that increase in government expenditures do not promote economic growth rather, it slows down the overall performance of the economy. The question which arises therefore is what has led to disproportionate or mismatch between government expenditure and economic growth in Nigeria? What created the gap between economic growth and government expenditure? This paper aims at investigating the impact of



government expenditure (recurrent expenditure and capital expenditure) on economic growth in Nigeria from 1981 – 2012.

In Nigeria as in most developing countries, the role of government in economic development can be categorised into stabilisation, resource reallocation and income distribution. Therefore the government intervenes in the economy using fiscal and monetary policies. Specifically, fiscal policy refers to the manipulation of government revenue and expenditure towards influencing the workings of the economic system. Government revenue sources include different forms of taxes, rents, profits and sales of natural resources, etc. The expenditure include government spending on defence, education, health as well as subsidies. For budgetary purposes, government revenues sometimes absorb government expenditure in a situation referred to as a balanced budget while in some other instances the revenue falls short of the expenditure and this is referred to as the deficit budget. Yet in some instances, the revenue exceeds the expenditure and this is referred to as a surplus budget. In Nigeria, given the preponderance of oil revenue in the total government revenue, government expenditure traces the volatility in oil prices. When oil price rises, government revenue rises and expenditure also rises. When price falls, the revenue falls and so the expenditure.

## LITERATURE REVIEW

Economic theory has shown that government spending can either be beneficial or detrimental to economic growth. These are the two main controversial positions economists supported on the relationship between government expenditure and economic growth.

### The Keynesian Theory

In the Keynesian macroeconomics, increase in government expenditure has an expansionary effect on income and employment through the multiplier effects on aggregate demand. On the other side, government expenditure crowds out private investment as a result of increase in the rate of interest and this slows down economic growth and reduces the rate of capital accumulation in the long run. (KEYNES, 1936) regarded government expenditure as an exogenous variable that contributes positively to economic growth. Hence, an increase in government expenditure would likely lead to increase in employment, profitability and output through the multiplier effects on aggregate demand.

With the introduction of government expenditure (G) by Keynes, the national income determination model is expanded which becomes;

$$AD=C+I+G$$

Where, AD represents aggregate demand which equals the sum of consumption (C), Investment (I), and government expenditure. The government expenditure has direct and positive impact on the GDP. An increase in government expenditure will boost aggregate demand, resulting in higher level of national income. All things being equal, an increase in government spending has an expansionary effect on output and income while a decrease has contractionary effect on output and income.



However, the neoclassical growth models argued that government fiscal policy does not have positive effect on the growth an economy. On the contrary a significant number of scholars have agreed that fiscal policy is a potent tool in promoting growth and improving failures arising from the inefficiencies of the market.Hence, government fiscal policy could be a vital tool of militating against failure arising from market inefficiencies (Abu NURUDDEN, 2010).

### **Adolph Wagner's Theory of Increasing State Activities**

The earliest of all theories of government growth is Wagner's Law of Increasing State Activity. This theory posits a relationship linking industrialization, urbanization and education to the expansion of the public sector ((BIRD, 1971). The activities of the different tiers of government (federal, state and local) increase both intensively and extensively arising from increasing demand for public utilities. Wagner advanced the theory of rising public expenditure by analysing trend in the growth of government expenditure and in the size of government expenditure.Wagner's law postulates that: (i) the extension of the functions of the states leads to an increase in public expenditure on administration and regulation of the economy; (ii) the development of modern industrial society would give rise to increasing political pressure for social progress and call for increased allowance for social consideration in the conduct of industry (iii) the rise in public expenditure will be more than proportional increase in the national income (income elastic wants) and will thus result in a relative expansion of the public sector. So it is the economic growth that determines government size.

The theory explains that increases in public goods are a product of increased demands by organized industrial workers, coming at the costs of growth in the private sector(WAGNER, 1958). The government sector tends to grow faster than the than the economy. Bureau Voting Theory rejected the role of industrialization and urbanization, suggesting that the main driver of public sector expansion is an artificial demand for government services created by self-interested government employees ((NISKANEN, 1971). In Fiscal illusion theory which tries to explain government growth by linking the intricacies of tax systems to the masking of the costs of public goods. Also, tax systems can hide the costs of public goods and therefore stimulate their growth ((GOETZ, 1977). Empirical support for these theories has varied, causing them to lose some of their impetus.

### **Musgrave's Theory of Public Expenditure Growth**

The Musgrave's theory of public expenditure and growth explained that, at low level of per capita income, the demand for public services tend to be very low, arguing that such income is devoted to satisfying primary needs and it is only when the per capita income starts to rise above these level of low income that the demand for services provided by the public sector such as education, health, and transports starts to rise, thereby forcing government to increase expenditure on them. The theory observed that with high per capita income typical in the developed nations, the rate of public spending falls as most basic wants are being satisfied. Therefore the theory suggested in connection to Wagner that as progressive nations become more industrialized, the share of public sector in the national economy grows continually ((MUSGRAVE, 1988) Iyoha stated five stages of expenditure growth; "Traditional society,

preconditions for take-off, the take-off; the drive to maturity and the eye of high mass consumption.” What determines the accepted expenditure-growth depends critically on the assumption of the type of economy, i.e. whether it is a free market economy, a mixed economy or a command economy (IYOHA, 2002).

### **Wiseman-Peacock Hypothesis**

(PEACOCK-WISEMAN, 1961) is another thesis put forth by Peacock and Wiseman in their study of public expenditure in the UK. It explained the reason of increasing public expenditure from the social-political perspective. It argues that Government expenditure will increase as income increases but because the leaders want re-election into political offices, additional infrastructures must be provided in order to convince the electorate that their interests are being catered for by the people voted into power. However, the citizens of the country are less willing to pay tax. The resistance of the care of the government in form of increased spending to avoid social crises in the economy. The resistance to pay tax by the people will make the state to have low revenue hence the cost of providing more facilities is borne by the government, making government expenditure to increase rapidly.

### **EMPIRICAL LITERATURE**

At different countries and times, researchers in have done a lot of work in an attempt to examine the effect of government expenditure on economic growth. (LAUDAU, 1983) found that the share of government consumption to GDP reduced economic growth which was consistent with the pro-market view that the growth in government constrains overall economic growth. The conclusions were germane to growth in per capita output and do not necessarily speak to increase in economic welfare. Economic growth was also found to be positively related to total investment in education. In a later study, (LANDAU, 1986) extended the analysis to include human and physical capital, political, international conditions as well as a three year lag on government spending in GDP. Government spending was disaggregated to include investment, transfers, education, defence and other government consumption. The results in part mirrored the earlier studies in that general government consumption was significant and had a negative influence on growth. Education spending was positive but not significant. It was unclear why lagged variables were included given that the channels through which government influence growth suggest a contemporaneous relationship.

In a related research on 30 OECD countries, the study investigated the relationships between government expenditure and economic growth during the period 1970-2005. The regression results showed the existence of a long-run relationship between government expenditure and economic growth. Moreover, the authors observed a unidirectional causality from government expenditure to growth for 16 out of the countries, thus supporting the Keynesian ideology. However, causality runs from economic growth to government expenditure in 10 out of the countries, confirming the Wagner’s law. Finally, the authors found the existence of feedback relationship between government expenditure and economic growth for a group of four countries (OWOYE, 2007).

In another rigorous study, it attempts to incorporate a theoretical basis for tracing the impacts of government expenditure to growth through the use of production functions specified for both public and private sectors. The data spanned 115 countries to derive broad generalizations for the market economics investigated. He found government expenditure to have significant positive externality effects on growth particular in the developing countries (LDC) sample, but total government spending had a negative effect on growth (RAM, p. 1986)

In Nigeria several authors have worked on the topic and different results and findings were arrived at.

A study using a disaggregated approach to determine the components (that included capital, recurrent, administrative, economic service, social and community service, and transfers) of government expenditure that enhances growth and those that do not. The author concluded that there was no significant association between most components of government expenditure and economic growth in Nigeria (AKPAN, 2005)

A research work trying to examine the relationship between the Nigeria's defence sector and economic development, it reported a positive impact of defence expenditure on economic growth (OYINLOLA, 1993). Also an empirical investigation concerning the relationship between government expenditure and economic growth in Nigeria was carried out and the econometric results indicated that real government capital expenditure has a significant positive influence on real output. However, the results showed that real government recurrent expenditure affects growth only by little (FAJINGBESI, 1999). Also, study by (OGIOGIO, 1995) revealed a long-term relationship between government expenditure and economic growth. Moreover, the author's findings showed that recurrent expenditure exerts more influence than capital expenditure on growth.

A study carried out by (OKORO, 2013) empirically examined the impact of government expenditure on economic growth for the period (1980-2011) using cointegration and error correction test and found out that there exist a long run equilibrium between government spending and economic growth. Also, in a similar research estimating the impact of government expenditure on economic growth for the period (1961-2010), the research used causality test and cointegration method and found out that governmental capital expenditure translates to higher economic growth and any reduction in capital expenditure would have a negative consequences on economic growth (NASIRU, 2012).

A research paper using empirical data (1970-2008) investigated how government expenditure has impact on economic growth. A disaggregated method was employed and the study found out that total capital expenditure (TCE), total recurrent expenditure (TRE) and government expenditure on education (EDU) have negative impacts on economic growth. While rising government spending on transport and communication and health have positive impact on economic growth (Abu NURUDDEN, 2010). In a related study, (CHIAWA, September 2012) also used cointegration and causality test in analysing government expenditure effect on growth and concluded that government expenditure causes economic growth. An empirical investigation of government expenditure in Nigeria (1960-2010) was done by

employing a single equation estimation approach and found out that inflow of foreign aid leads to a rise in recurrent expenditure on administration as against capital expenditure (AREGBEYEN, 2013).

An investigation on the effect of government development expenditure on economic growth of India during the period 1950-2007 was carried out in an effort to examine the correlation between government spending and economic growth. The authors reported a significant positive impact of government expenditure on economic growth. They also found the existence of co-integration among the variable. This implies that government spending is a determinant of economic growth both in the short and the long run (SHARMA, 2008). A study carried out based on a panel study spanning 26 years to discover the relationships that exist between public expenditure and economic development. The empirical findings are in line with the position that large public spending affects growth negatively (HENREKSON, 2001). This confirms the argument put forward by Hayek (1989), Friedman (1963) and other neo classical economists.

A study investigated the impact of both government recurrent and capital expenditure on growth performance using an econometric analysis based on Johansen technique for the period of 1970-2009. The results from the study indicated that the components of total expenditure have been impacting negatively (except education and health) and insignificantly on economic growth rate. The study further shows that capital expenditure may likely induce significant impact on growth rate in the long-run (OGUNDIPE A. A., 2013).

In trying to find a conclusive position, a research examined the effect of government spending on economic growth using panel data set from Sub-Saharan Africa. The results obtained through the use of Fixed and Random estimation techniques indicated that government expenditure had positive and significant impact on economic growth. The study suggested that, through promotion of productive activities, reducing unproductive ones and executing appropriate policies, it is possible to maintain positive and direct relationship between government expenditure and economic growth (YASIN, 2000).

## **DATA COLLECTION METHOD**

The research paper made use of time series data for the period (1981-2012) which includes data on GDP growth rate, government expenditure, inflation, exchange rate and interest rate. The data on the variables used in the research is a secondary data sourced from Central Bank of Nigeria's (CBN) annual report of various issues and the National Bureau of Statistics (NBS). The variables such as government expenditure (GEX) and GDP are expressed in millions naira.

## **METHODOLOGY**

The research paper adopted a single equation, involving the use of ordinary least squares (OLS) multiple regression method for empirically analysing the quantitative effects of government expenditure on economic growth in Nigeria. The data collected on the relevant number of variables is subjected to an OLS estimation method. OLS estimation was

employed because of its peculiar properties and it is a commonly used technique in econometric analysis. These statistical properties include efficiency, minimum variance, consistency and non-biasness. OLS estimators are best linear unbiased estimates.

### Research Design

The goal of this paper is to investigate the impact of government expenditure on growth of the Nigerian economy. The hypothesis is on whether increasing government expenditure over the past few years led to a proportional increase in growth. The nature of the research work is an empirical one where study on the variables was done based on the data collected.

### Model Specification

In an attempt to find the relationship between government expenditure and economic growth (1981-2012), the multiple regression analysis was employed in our analysis. The model states that economic growth (GDP) depends on government spending, the interest, exchange, and inflation rates. The functional representation of the model is as follows;

$$\text{GDP} = f(\text{GEX}, \text{INTR}, \text{INFR}, \text{and EXR}) \dots\dots\dots (1)$$

Where; GDP= the gross domestic product or the economic growth rate

GEX= government expenditure

INTR= interest rate

INFR= inflation rate

EXR= exchange rate

It can also be presented in a linear form as;

$$\log \text{GDP} = b_0 + b_1 \log \text{GEX} + b_2 \text{INTR} + b_3 \text{INFR} + b_4 \text{EXR} + \mu_t \dots\dots\dots (2)$$

Where  $\log \text{GDP}$  = log of Gross Domestic product

$\log \text{GEX}$  = log of government expenditure

$b_i$ s= parameters of the equation to be estimated

$\mu_t$ = the error term.

Note:  $i = 0, 1, 2, 3, 4$ .

This equation model is a multiple regression model and is based on the following assumptions that;

- i. The stochastic term ( $\mu_i$ ) is a real random variable.
- ii. The variable  $\mu_i$  has a normal distribution.
- iii. The disturbance term  $\mu_i$  has a zero mean. i.e.  $E(\mu_i) = 0$
- iv. The variance of  $\mu_i$  is constant in each period. i.e.  $\text{Var}(\mu_i) = \delta \mu_i^2$
- v. The covariance of any  $\mu_i$  with any other  $\mu_j$  are equal to zero (0) symbolically;  $E(\mu_i, \mu_j) = \text{COV}(\mu_i, \mu_j) = 0$ . I.e. there is no Autocorrelation between the disturbance terms (KOUTSOYIANNIS, 1977).

### RESULTS

The empirical result is shown in the table below. It shows the estimated parameters of the variables, the t-statistics and other diagnostic test of equations. With E-Views software, GDP was regressed on the explanatory variables.

Table 4.2.1 Empirical Results

Dependent Variable: LOG(GDP)

Method: Least Squares

Date: 04/20/15 Time: 12:20

Sample: 1981 2012

Included observations: 32

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.420556	0.398326	6.076819	0.0000
EXR	-0.000360	0.001431	-0.251311	0.8035
INFR	0.002469	0.002191	1.126952	0.2697
INTR	-0.007591	0.007573	-1.002389	0.3251
LOG(GEXP)	0.986443	0.040910	24.11254	0.0000
R-squared	0.993224	Mean dependent var		14.60584
Adjusted R-squared	0.992220	S.D. dependent var		2.061106
S.E. of regression	0.181515	Akaike info criterion		-0.432361
Sum squared resid	0.889584	Schwarz criterion		-0.203339
Log likelihood	11.91777	Hannan-Quinn criter.		-0.356446
F-statistic	989.4299	Durbin-Watson stat		1.950764
Prob(F-statistic)	0.000000			

Source: Output of the E-Views Regression

The model has the following results from the regression analysis;

$\text{Log(GDP)} = 2.4205 + 0.9864\text{log(GEX)} - 0.0075\text{INTR} + 0.0024\text{INFR} - 0.0003\text{EXR}$

S.E (0.3983) (0.0409) (0.0075) (0.0021) (0.0014)

T-Value 6.0616 24.3195 -1.0324 1.1651 -0.2783

$R^2 = 0.99$

Adjusted  $R^2 = 0.99$

F-Value = 989.4299

D.W = 1.95

N = 32

### Analysis of Results on the Basis of Economic Criteria

- Government Expenditure (GEX)

The coefficient of government expenditure from the regression is highly positive. This implies that increase in government expenditure leads to expansion in output (GDP). From the result, it is 0.9864, meaning that a unit increase in government expenditure will increase GDP by 0.9864. This justifies the theories of economists like Keynes who postulated that an



injection of money into the economy in form government spending expands the total output in the economy.

- Interest rate (INTR)

The result given by the regression has indicated that there is a negative relationship between interest rate and the rate of economic growth. The coefficient of the interest rate is -0.0075 implying that a unit increase in the rate of interest brings about a decrease in the GDP by 0.0075. This result is consistent with a priori expectation where the relationship between interest rate and GDP tend change an inverse manner.

- Inflation rate (INF)

From our finding, both inflation and economic growth have a positive relationship, i.e they tend to move in the same direction. The coefficient has shown a positive one (0.0024) which means that a unit increase in the rate of inflation will increase the GDP by 0.0024. This also satisfies the a priori economic expectation as when government spending rises, the general price level is expected to rise also

- Exchange rate

The coefficient of the exchange rate from the regression has been a negative one. The implication of this result is that, GDP and exchange rate do not move in the same direction. The exchange rate coefficient of -0.0003 means that, a unit increase in exchange rate results to a decrease in the GDP by 0.0003. This explains that exchange rate and GDP have an inverse relationship; a low exchange rate of naira leads to higher economic growth and vice versa.

Therefore, the results obtained from the regression are expected to follow the economic apriori expectation both in magnitude and size. The table below analysed the outcome of the parameters.

## CONCLUSION

From this study we can conclude that, government expenditure impacts significantly the growth rate of GDP based on the research analysis. This means that, government expenditure is a true parameter for measuring economic growth. Therefore, the study has shown that government expenditure is the main driver of economic growth. The other variables such as interest rate, exchange rate and inflation rate also have impact on economic growth because of their right signs.

## RECOMMENDATIONS

Based on the findings, for the government expenditure, interest rate, inflation rate and exchange rate to have positive impact on economic growth, the following policy options are recommended;



1. Government should increase its expenditure in order to further drive economic growth.
2. The interest rate should be kept low to drive/accelerate economic growth.
3. The monetary authority should ensure that the value of the naira is protected; this will lead to appreciation of the naira and further increase economic growth.
4. In light of the position of the relationship between the rate of inflation and economic growth, some level of inflation is advisable/tolerable for economic growth to take place. Zero inflation should not be the goal of monetary authority, but sustainable level of inflation for sustainable growth rate. Therefore, some level of inflation is good for economic growth in Nigeria.

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## ANALYSIS OF THE CONTRIBUTION OF TAX TO GOVERNMENT REVENUE IN NIGERIA (1980 - 2014)

Prof Sule Magaji <sup>1</sup> Anthony Ayo Andrew <sup>2</sup>

<sup>1</sup> *Department of Economics, University of Abuja, Abuja, Nigeria*

<sup>2</sup> *National Biotechnology Development Agency, Planning Unit, Abuja, Nigeria*  
ayowonderful@yahoo.co.uk

### ABSTRACT

The paper examined the contribution of taxation to government revenue in Nigeria using time series data covering the period 1980 through 2014. The methodology employed is regression analysis. The model was estimated using least square method. We verify the stationarity properties of the variables used in the model via unit root test and pairwise Granger causality tests were also carried out to check the direction of causality. The study found that taxation is positively and significantly related to total government revenue. Since Taxation has a positive relationship with Government Revenue, Government should enact and implement policies that will reduce the problem of tax evasion and tax avoidance so that all the goods and services produced in Nigeria can be taxed. With the continuous fall in revenue generated from sales of crude oil, increase in government expenditure, and increase in GDP, Nigeria Government should see taxation as its main source of revenue and improve the tax administration in Nigeria.

**Keywords:** Taxation, Government Revenue, Tax Administration, Stationary, Causality.

### 1.0 INTRODUCTION

Nigeria is richly blessed with oil and gas among other mineral resources, but the over dependence on oil revenue for the economic development of the country has left much to be deserved. According to Ariyo (1997) Nigeria's over dependence on oil revenue to the total neglect of other revenue source was encouraged by the oil boom of 1973/74. This is unsustainable due to the fluctuation in the oil market which have in most cases plunged the nation into deficit budgets. It was the view of Popoola (2009) that Nigerian tax administration and practice be structured towards economic goal achievement since government budget for the year centers on the oil sector. While decrying the low productivity of the Nigerian tax system, "deficiencies in the tax administration and collection system, complex legislations and apathy on the part of those outside the tax net" were identified as some of the problems of tax administration.

A decline in price of oil in recent years has led to a decrease in the funds available for distribution to the Federal Government and to the State Governments. The need for Federal, states and local governments to generate adequate revenue from internal sources has therefore become a matter of extreme urgency and importance. This need underscores the eagerness on the part of state and local governments and even the federal government to look for new sources of revenue or to become aggressive and innovative in the mode of collecting revenue from existing sources (Aimurie, 2012). Aguolu (2004) stated that though

taxation may not be the most important source of revenue to the government in terms of the magnitude of revenue derivable from taxation, however, taxation is the most important source of revenue to the government, from the point of view of certainty, and consistency of taxation. Aguolu (2004) further stated that taxation is hence the most important source of revenue to the government. Owing to the inherent power of the government to impose taxes, the government is assured at all times of its tax revenue no matter the circumstances. Over the years, revenue derived from taxes has been very low and no physical development actually took place, hence the impact on the poor is not being felt. It is the view of many people that the loss of revenue caused by widespread tax evasion and tax avoidance in Nigeria is due to inefficient and inept tax administration. Omorogiuwa (1981) said that ineffective tax administration is the main factor responsible for large scale tax evasion in Nigeria.

What extent has taxation contributed to revenue generation in Nigeria?

Over the years, revenue derived from taxes has been very low and no physical development actually took place, hence the impact on the poor is not being felt. Inadequate tax personnel, fraudulent activities of tax collectors and lack of understanding of the importance of tax by tax payers are some of the problems of taxation in Nigeria

The objective of this study is to analysis the contribution of tax to government revenue in Nigeria. The result of this study will throw more light on the contributions of taxation to government revenue and the problems associated to taxation in Nigeria. The study will also be of immense benefit for future users as well as other researchers, scholars and students. The study will also provide members of the public knowledge on the importance of taxation in Nigeria and on the effective utilisation of taxation to promote fiscal redistribution of income.

This study shows the contribution of Tax to government revenue. It will focus on federal government revenue and taxation. Study will cover a period of 34 years (1980 to 2014) .The period covered by this research enabled the research to be reliable. This study has a general scope of discussing the various types of taxes and Tax systems. For the purpose of analysis, this study is divided into five sections; the first section is introduction of the topic under review. The second section of the study is the literature review which discussed review of relevant literature, and conceptual issues on Taxes in Nigeria. Section three contains the methodology, model specification, source of data, and the hypothesis to be tested. Section four will focus on empirical analysis and interpretation of result. Finally, in section five, the conclusion will be drawn and final issue will be discussed.

## **2.0 LITERATURE REVIEW**

### **2.1 Conceptual Review**

Taxation is seen as a burden which every citizen must bear to sustain his or her government because the government has certain functions to perform for the benefits of those it governs. A précised definition of taxation by Farayola (1987) is that taxation is one of the sources of income for government, such income as used to finance or run public utilities and perform other social responsibilities. Ochiogu (1994) defined tax as a levy imposed by the government against the income, profit or wealth of the individuals and corporate organizations.

According to Adams (2001) taxation is the most important source of revenue for modern governments, typically accounting for ninety percent or more of their income. Taxation is seen by Aguolu (2004), as a compulsory levy by the government through its agencies on the income, consumption and capital of its subjects. These levies are made on personal income, such as salaries, business profits, interests, dividends, discounts and royalties. It is also levied against company's profits petroleum profits, capital gains and capital transfer. Whereas, Ojo (2008) stresses that, taxation is a concept and the science of imposing tax on citizens. According to him, tax is itself a compulsory levy which is required to be paid by every citizen. It is generally considered as a civic duty. The imposition of taxation is expected to yield income which should be utilized in the provision of amenities, both social and security and creates conditions for the economic well being of the society.

Okon (1997) states that income tax can be regarded as a tool of fiscal policy used by government all over the world to influence positively or negatively particular type of economic activities in order to achieve desired objectives. The primary economic goals of developing countries are to increase the rate of economic growth and hence per capita income, which leads to a higher standard of living. Progressive tax rate can be employed to achieve equitable distribution of resources. Government can also increase or decrease the rates of tax, increase or decrease the rate of capital allowances (given in lieu of depreciation) to encourage or discourage certain industries (e.g. in the area of agriculture, manufacturing or construction) or may give tax holidays to pioneer companies. Income tax therefore can be used as an agent of social change if employed as a creative force in economic planning and development.

Taxation may be defined as the demand made by this government of a country for a compulsory payment of money by the citizens of the country (Ola1985). It may also be defined as a compulsory levy imposed by the government of a state for effective management of the government activities (James 2014). Taxation is a general concept for devices used by governments to extract money or the other valuable things from people and organisations by the use of law. Tax formula contains at least three elements the definitions of the base, the rate structure and identification of legal tax payer. The base multiplied by th appropriate rate gives a product called the tax liability which is the legal obligation that the tax payer must meet at specified income in the case of income tax. The rate structure may be simple, consisting of one rate applying to the base, such as a specified number of naira (#) per litre of a tax on petrol or complex e.g varying rate depending upon the size of the base of a tax on personal income.

Taxation presupposes private ownership of wealth, if a government owned all the wealth embodied in people, it would be nothing to tax. Afuberoh et al (2002) defined tax “as the transfer of resources from the private to public sector in order to accomplish some of a nation’s economic and social goal”.

## **TAX SYSTEM IN NIGERIA**

The tax system in Nigeria is made up of the tax policy, the tax laws and the tax administration. All of these are expected to work together in order to achieve the economic goal of the nation. According to the Presidential Committee on National tax policy (2008), the central objective of the Nigerian tax system is to contribute to the well being of all Nigerians directly through improved policy formulation and indirectly through appropriate utilization of tax revenue generated for the benefit of the people.

## **TAX LAWS IN NIGERIA**

This refers to the embodiment of rules and regulations relating to tax revenue and the various kind of tax in Nigeria. They are made by the legislative arms of the government. These laws are constantly subjected to amendment. There is no doubt that the frequency of amendment is a manifestation of inconsistencies and consequently hinders the achievement of the set up goals. However, in an attempt to meet up with the three years policy review as earlier stated and or adjust to the economic dynamism of the country, amendment could equally be made. According to Kiabel and Nwokah (2009), and Ayodele (2006), the following are some of the prevailing tax laws in Nigeria: Personal Income Tax Act (PITA) CAP P8 Law of Federations of Nigeria (LFN) 2004, Company Income Tax Act (CITA) CAP.60, Petroleum Profit Tax Act (PPTA) 2007, Value Added Tax (VAT) Act No 102 LFN 1993, Capital gain tax Act CAP 42 LFN 1990, Stamp Duties Act CAP 411 LFN 1990, Education Tax Act No 7 LFN 1993, Information technology Development Act 2007 etc.

## **TAX ADMINISTRATION IN NIGERIA**

The organs and or agencies in charge of tax policy implementation in Nigeria are referred to as the administrative organ or agency in this research work. Efficiency and effectiveness should be the watch word in designing a tax administration structure that will give the desired result (McPherson 2004). Put differently, tax administration in Nigeria is the responsibility of the various tax authorities as established by the relevant tax laws (Kiabel and Nwokah 2009). Citing Section 100 of the personal income tax Decree, 1993 and amended by Decree No 18-Finance (Miscellaneous Taxation Provisions) Decree 1998, Kiabel and Nwokah (2009) noted “Tax authority “to mean Federal Board of Inland Revenue, the State board of internal revenue and the local government revenue committee. Together with the Joint tax board (JTB) and Joint state revenue committee or Local Revenue Committee, Nigerian tax authority administers taxes in Nigeria.

## **2.2 EMPIRICAL REVIEW**



The impact of taxation on government revenue and peoples welfare has been a subject of contention over the years. Baghebo and Edoumiekumo (2012) used a disaggregated approach to investigate the impact of Government revenue on economic growth and development in 1970s and 1980s and 1970-2010 respectively. The authors confirmed that government capital expenditure in GDP has a significant positive impact on economic growth, but the share of government current expenditure in GDP was shown to be insignificant in explaining economic growth and development.

Abdulah (2010) analyzed the association between government revenue and economic growth in Saudi Arabia. His findings reveal that the size of government is very important in the performance of the economy. He added that government should increase its spending on infrastructure, social and economic activities. In addition, government should encourage and support the private sector to accelerate economic growth and revenue from taxes.

In the United Kingdom, Greece and Ireland, Lizides and Vamvoukas (2005) employed the Granger causality test to examine the relationship between taxes and economic growth. The authors found that taxes granger because economic growth in all the countries they studied. The findings were true for Ireland and the United Kingdom both in the short and long run. The result also indicated that when inflation was included as an explanatory variable in the model, economic growth granger cause public expenditure for Greece and United Kingdom (See Baghebo, 2010, Baghebo and Edoumiekumo, 2012 for this and related issues). Baghebo and Edoumiekumo (2012) used the disaggregated approach to examine the relationship between public capital accumulation and economic development in Nigeria covering the period 1970 – 2010. The stationary status of the time series data was determined using group Unit root test. The variables attain stationary after first difference. The long run equilibrium relationship among the variable in the model was examined using Johanson co integration rank test of trace and maximum engen value test. The variables were co integrated. The short run dynamic adjustments required for stable long run equilibrium relationship among the variables was estimated using the Error correction mechanism. The result revealed that an insignificant positive relationship exist between capital expenditures and economic development in Nigeria.

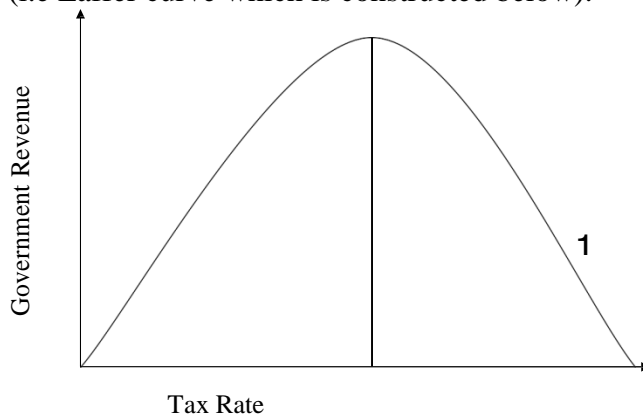
In Thailand, Komain and Brahmasrene (2007) empirically investigated the relationship between government expenditure and economic growth by employing the Granger causality test. The results revealed that government expenditure and economic growth are not co integrated. Moreover, the results indicated a unidirectional causality from government expenditure to growth. The result also shows that a significant positive relationship exist between government expenditure and economic growth.

Furthermore, some authors in their empirical investigation on the impact of government expenditure on economic growth have found a negative relationship (see Ghali, 1998) on Tunisia, Bogunjoko (1998) on Nigeria, South Africa and Botswana, while others found a weak one (see Al Faris (2002) on six gulf cooperation council countries, Kweka and Morrisery (1999) on Tunisia.

### **2.3 THEORETICAL FRAMEWORK**



The theory that this study looks at is Arthur Laffer theory on taxation, popularly known as the “Laffer Curve.” It is a theoretical representation of the relationship between government revenue raised by taxation and all possible rates of taxation. This theory is demonstrated with a curve (i.e Laffer curve which is constructed below).



It considered the amount of tax revenue raised at the extreme tax rates of 0% and 100%. The theory concludes that a 100% tax rate raises no revenue in the same way that a 0% tax rate raises no revenue. This is because at 100% rate, there is no longer incentive for a rational tax payer to earn any income, thus, the revenue raised will be 100% of nothing. It therefore follows that there must exist at least one rate in between where tax revenue would be a maximum. Laffer attributes the concept to Ibn Khaldun and Keynes J.M.

One potential result of this theory is that increasing tax rate beyond a certain point will become counter productive for raising further tax revenue because of diminishing returns (Laffer, 2004). The second theory that helps to shape taxation is Ibn Khaldun theory on taxation. This theory was explained in term of two different effects that is the arithmetic effect and the economic effect which the tax rates have on revenues. The two effects have opposite results on revenue in case the rates are increased or decreased.

According to the arithmetic effect, if tax rates are lowered, tax revenues will be lowered by the amount of the decrease in the rate. The reverse is true for an increase in tax rates. The economic effect however recognized the positive impact that lower tax rate have on work, output and employment and thereby the tax rate base used in providing incentives to increase these activities whereas raising tax rates here the opposite economic effect is used by penalizing participation in the taxed activities. At a very high tax rate, negative economic effect dominates positive arithmetic effect, thereby, the tax revenue declines (Islahi, 2006).

### 3.0 METHODOLOGY

In this work, Annual time series data of variables are used and in order for the impact of Revenue from tax on government revenue to be sustainable, stationary of the data will be checked i.e. the data will be tested for unit root by using the Augmented Dickey – Fuller (ADF) test. This is to prevent spurious regression. Then pair wise Granger causality tests were also carried out to check the direction of causality. Multiple regression analysis with a dependent variable and some independent or explanatory variables will be employed.

Estimates are obtained by employing Least Square method (OLS). Correlation Analysis will be used to determine the nature and strength of relationship between the dependent and independent variables. T-statistics and F test will be used to carry out statistical significance at 95% confidence level. Coefficient of multiple determination ( $R^2$ ) will also be used to judge the strength of the estimated regression equation. Also, Durbin Watson statistic will be used to test for the presence of serial correlation (Autocorrelation), which is also common in time series data.

### 3.1 STATEMENT OF HYPOTHESIS

As earlier stated, the utmost aim or objective of this study is to examine the impact of Tax on government revenue. In line with the above objectives, the hypotheses were stated thus:

- $H_0$ : There is no significant relationship between tax and government revenue.  
 $H_0$ : Revenue from tax has not significantly contributed to government revenue

### 3.2 MODEL SPECIFICATION

According to macro economic theory Taxation is positively correlated with Government revenue and Economic growth. Economic growth and development is situated in growth theory that emphasizes the role of Government revenue and productivity in promoting growth and development (Islahi, 2006). The sources of Government revenue can be broadly grouped into two: revenue from taxation and other sources like revenue from public enterprise, fees, fines etc. Consequently, adapting the model of Islahi (2006) the model that shows the relationship between government revenue and tax is specified thus:

$$TGR = F (RT, RO, GDP, FDI)$$

Where;

TGR = Total Federal Government Revenue

RT = Federal government Revenue from tax

GDP = Gross Domestic Product.

RO = Federal government revenue from oil

FDI = Foreign Direct Investment

The linear expression of the above model is presented below;

$$TGR_t = \alpha_0 + \alpha_1 RT_t + \alpha_2 GDP_t + \alpha_3 RO_t + \alpha_4 FDI_t + \mu_t$$

Where  $\mu_t$  is the error term which is assumed to satisfy the OLS assumptions.

All the variables in the above model have been selected on the basis of how frequently they were cited in previous applied studies and how important they were.

The data required for the estimation of the models include: TGR, RT, FDI, RO and GDP. The data for the variables are extracted from CBN Statistical Bulletin of various years and from National Bureau of Statistic data base.

### 4.0 EMPIRICAL ANALYSIS

To achieve the stated objectives of the study, annual time series data of the variables were used. The period covered by the study is 1980 – 2014. The choice of the period is informed by the development in the Nigeria economy.

In order for the impact of Tax revenue on Government revenue to be sustained, (i.e. to be time invariant or stationary) we checked the time serial statistics of the included variables. The data were tested for unit root by using the Augmented Dickey Fuller (ADF) test.

**4.1.1 Unit root test of stationarity**

Non spatiality of time series data has often been regarded as a problem in empirical analysis. Working with non-stationary data can lead to spurious regression from which further inference is meaningless. The first step is therefore to test for stationarity of the data using Augmented Dickey Fuller unit root test:

**Table 4.1: Augmented Dickey Fuller test for Unit Root [test for Stationarity (1980 – 2014)]**

Variables	ADF Static	Critical Value 1%	Critical Value 5%	Critical Value 10%	Order of Integration
TGR	-4.7998	-2.6395	-1.9521	-1.6214	I(1)
RT	5.6666	-2.6369	-1.9517	-1.6213	I(0)
RO	-5.3986	-2.6395	-1.9521	-1.6214	I(1)
FDI	-4.1674	-2.6423	-1.9514	-1.6214	I(1)
GDP	3.5680	-2.6344	-1.9526	-1.6211	I(0)

Source: Author’s computation

From the result shown in table 4.1 above, total government revenue, revenue from oil and FDI have unit root, but they are stationary at first difference; if a time series has a unit root, the first difference of such data are stationary (Gujarati 2007:820).

Revenue from tax and GDP has no unit root i.e they are stationary

**4.2.2. Pair wise Granger Causality Test**

**Table 4.1.2 Pair wise Granger Causality Test.**

Null Hypothesis	Obs	F-statistic	Prob.	Decision	Direction
RT doesn’t granger cause TGR	32	1.6347	0.2137	Accept	No. causality
TGR doesn’t granger cause RT		1.5528	0.2299	Accept	No causality
RO doesn’t granger cause TGR		1.6347	0.915	Accept	No Causality

TGR doesn't granger cause RO	32	2.0016	0.477	Accept	No causality
GDP doesn't granger cause TGR		10.7354	0.004	Reject	Causality
TGR doesn't granger cause GDP	31	3.7125	0.0382	Reject	Causality
FDI doesn't granger cause TGR	31	2.3579	0.1145	Accept	No Causality
TGR does not granger cause FDI		3.2504	0.0549	Reject	Causality
RO doesn't granger cause RT		1.5528	0.2229	Accept	No causality
RT doesn't granger cause RO	32	2.0016	0.1547	Accept	No causality
GDP doesn't granger cause RT.	31	1.4279	0.2580	Accept	No Causality
RT doesn't granger cause GDP		0.1233	0.8844	Accept	No Causality
FDI doesn't granger cause RT.	31	2.0822	0.1449	Accept	No Causality
RT doesn't granger cause FDI		0.1997	0.8203	Accept	No Causality
GDP doesn't granger cause RO.	31	9.2967	0.0009	Reject	Causality
RO doesn't granger cause GDP		4.0973	0.0284	Reject	Causality
FDI doesn't granger cause RO.	31	2.0536	0.0519	Accept	No causality
RO doesn't granger cause FDI		3.3048	0.0047	Reject	Causality

### Source" Auther Computation

In Table 4.1.2 above, the granger causality test shows that there is a unidirectional relationship between the regressand (TGR) and almost all the repressors excluding GDP which has two ways causality with TGR. This shows that almost all the explanatory variables are exogenous, which conform to OLS assumptions.

### REGRESSION RESULTS

The model was estimated using least square method and it produces the following results:

Table 4.2 : **Dependent variable: TGR**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RT	0.41	0.071	5.82	0.000
RO	0.99	0.025	40.3	0.000

GDP	0.033	0.009	3.52	0.0015
FDI	1.74	1.73	1.009	0.32
INTERCEPT	-18384	23797.6	-0.7725	0.4463
R <sup>2</sup> = 0.9993		F-statistic = 10378.8 N = 34		
Adjusted R <sup>2</sup> = 0.9992		Log likelihood = -422.8 K = 5		
D. W Statistic = 1.94		Akaike info Criteria = 25.92		
		Schwart Criterion = 26.15		

Source: Author's computation

### 4.3 INTERPRETATION AND POLICY IMPLICATION OF RESULT

The result of the estimated equation presented in Table 4.2 above shows that the model is well behaved. The level of explanation of variation in Total Federal Government Revenue (TGR) by the estimated equation is high as represented by the value of coefficient of determination ( $R^2$ ) i.e.99.93%. It indicates that the model has good fit: 99.86% variation in Total Federal Government Revenue is explained by estimated regression line/equation. The F statistic is highly significant: comparing the f statistic (10378.8) with the tabulated F at 5% level of significance and (3,30) degree of freedom 2.70, showing that the coefficient of determination is significant. Also, this shows that the model is statistically significant and all the estimates are significantly different from zero i.e. all explanatory variables are good determinants of Federal Government Revenue.

Also, from the result, based on a prior and statistical criterion, Revenue from tax has a positive relationship with Total Federal Government Revenue in the period under consideration. A unit changes in Revenue from taxes will lead to on the average 0.41unit changes in Total Government revenue, holding other factors constant This relationship is statistically significant and theoretically inline, i.e taxation is a source of government revenue. However, the proportion of revenue from taxation to the total government revenue is low. That is why tax to GDP ratio in Nigeria is very low. This also buttresses the fact that the problem of tax evasion and tax avoidance is prevalent in Nigeria. Also, from the result above, GDP has a positive relationship with Total Government Revenue and this relationship is statistically significant even at 5%. This is also theoretically inline. Increase in GDP means increase in output level, and hence, increase in the tax base. If all the outputs are being taxed, there will be increase in government revenue. Revenue from oil also has a positive and significant relationship with total government revenue in the period under consideration. FDI has a positive relationship with government revenue, but this relationship is not statistically significant. This may be due to the incentives like tax holiday or allowance granted to Foreign investors.

This regression results is reliable and statistically fit for policy recommendation, this is because there is no problem of Autocorrelation. The D.W statistic is approximately equal to 2

(using the principle  $d^*=2$  (I-P). The Akaike and Schwartz tell us about the validity of the model. They show whether the model is well specified or not. It is believed that the lower the A/C and S/C, the better the model formulated. They are used to compare the forecasting performance of a model. From the regression result; the A/K and S/C value are 25.92 and 26.15 respectively. Therefore we can conclude that the model is also fit for forecasting.

## **POLICY IMPLICATION OF FINDINGS**

Since Taxation has a positive relationship with Government Revenue, Government should enact and implement policies that will reduce the problem of tax evasion and tax avoidance so that all the goods and services produced in Nigeria can be taxed. With the continuous fall in revenue generated from sales of crude oil, increase in government expenditure, and increase in GDP, Nigeria Government should see taxation as its main source of revenue and improve the tax administration in Nigeria.

## **5.0 CONCLUSION AND RECOMMENDATION**

Diversification of revenue sources for economic growth is very important if Nigeria must rank among equals in the improvement of the lives of her citizens. The focus on revenue from oil and gas amounts to putting all her eggs in one basket. In this modern days the speedy technological development will in no distant time render obsolete the use of such mineral resources like oil and gas and possibly replace same with solar energy which is more environmental friendly. Besides, the end of fluctuations in the oil price which characterize the oil market is not in sight. Therefore, to build and maintain the culture of sustainable growth, there is urgent need for a review and restructure of the nation's tax policy and administrative system.

However, government should note that it is not possible to tax a nation into prosperity. High tax rates will not only increase evasion but will equally discourage investment. In this era of globalization, unfriendly tax policies may create room for capital flight from Nigeria to other countries with more relaxed tax policies. Government should not only create an enabling environment for business establishment but also give all necessary support for its survival because profits of businesses are one of the major sources of tax revenue.

In conclusion, tax is a significant source of government revenue, however, policies on taxation should be made with due consideration for the welfare of the people. Government should make the people have a sense of belonging by providing social amenities with revenue generated and defaulters in tax payment should be made to face the wrath of the law. When that is done, the economic goals of taxation in Nigeria will be achieved.

## **RECOMMENDATIONS**

To optimize the potentials and significant contribution of tax to government revenue in Nigeria, the study makes the following policy prescription:

1. Government should see taxation as a significant source of its revenue rather than

- depending solely on crude oil.
2. All state governments should clearly state the basic objectives of its tax system and the relationship between these objectives. This will assist to give the tax administrators a sense of direction and make the tax payer see clearly the reasons he should pay his/her tax as at when due.
  3. Well equipped database on tax payers should be established by the federal, state and local governments through effective tax research with the aim of identifying all possible sources of income of tax payers for tax purpose. This will track down those who are evading tax.
  4. Tax officials must be adequately trained, well equipped and well motivated to carry out their jobs effectively.
  5. Government should equitably and judiciously use tax payers' money as this will encourage tax payers to continue to pay taxes.
  6. Stringent penalties should be meted to people who evade and avoid tax payments, as this will discourage tax evasion and tax avoidance.
  7. Effort should be made by the Federal, State and Local governments to diversify the main revenue source from oil to other sectors of the economy such as agriculture, extractive industries in order to attract direct and indirect taxes.

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## A MODIFIED FOOD SECURITY INDEX FOR INDIA

Bhola Khan (Ph.D.)  
Senior Lecturer & Head,  
Department of Economics,  
Yobe State University,  
Damaturu,  
Email: bholakhan.apj@gmail.com

### Abstract

*In this paper we have developed a new food security index. This index is an improvement over all the other food security indices developed by eminent economists and institutions from time to time. It has also been clarified that food security is not the same as hunger. It is a much wider problem. Hunger may be one of the aspects of food security. Our food security index which is developed to measure food security in India consists of five indicators. Child survival rate is an additional indicator in the modified index. With the help of the index, the trends and situation of food security in India are discussed and analyzed since 1991 to 2011.*

**Key Word:** food security, food security index, hunger, child survival

### Introduction:

Not only the level of food security was affected in 2007-08 due to increase in food prices the world over but also the nutritional level in most of the developing countries where people were bound to live on less than a dollar per day. According to United Nations, one billion people in the world are likely to face hunger because of unhealthy implementation of poverty eradication programmes (for example, Millennium Development Goals (MDG) due to higher food policies)<sup>1</sup>. The World Bank, too, has reported that 44 million people were pushed to poverty as a result of food price hike in 2008 and thus an imbalance between demand and supply of food was created<sup>2</sup>.

The factors responsible for the imbalance between demand and supply of food and shooting up of food prices were short term fluctuations and deeper structural shifts in demand for food grains which were expected to continue in the long term. Poor harvests of food crops in major agricultural regions, increase in demand from China and India, diversification of food crops from human consumption to production of biofuel and manufacturing for animal feed were also significant factors (M Iqbal and R Amjad, 2009). Mellon (2009) has pointed out that food prices affect poverty as high food prices result in reduced real income of the poor and a decline in their food consumption because they lack capacity to shift food patterns dominated by low cost calorie diet.<sup>3</sup> Apart from high food prices, various other factors also affect the level of food security such as share of agriculture in Gross Domestic Product (GDP), population, habitat and agricultural growth rate.

The purpose of the present paper is to develop an index to measure the level of food security of a country and, in particular, the food security level of India. A large number of indicators for food security have been identified by Food and Agriculture Organization (FOA); it has set up on its website data on these indicators obtained periodically from many countries. However, no attempt has been made to combine these indicators to develop and construct a composite index for measuring food security level of a country. But the International Fund for Agriculture and Development (IFAD) has constructed a food security index for measuring food security of 114 countries using the following indicators:

- i) per capita daily calorie supply
- ii) Annual growth rate of per capita daily energy supply
- iii) Food production index
- iv) Self-sufficiency ratio
- v) Production variability
- vi) Consumption variability

For constructing food security index, we have used the basic methodology already developed by IFAD but in a modified form. On the basis of IFAD methodology, economists like M.Iqbal and R.Amazad and Pakistan Task Force on food security also constructed food security index for SAARC countries and Pakistan as well, taking into account only four indicators like food availability index, food production index, self- sufficiency ratio index and inverse food prices index but in the process of developing food security index, they took weighted mean of the indicators giving arbitrary weights to different indicators. They assigned  $\frac{1}{2}$  weight to food availability index, and for the rest of the indicators they assigned  $\frac{1}{6}$  weight. There is no sufficient reason as to why these weights are being assigned to these different indicators.

Our Food Security index developed is based on IFAD methodology but we have added one new variable – the child survival index- which is derived from child mortality rate (under five mortality rate). The reason for including child survival rate index is that it is an important indicator concerning food security because if more children survive, more food would be required to feed them. It also means that the health of mothers has improved as a result of better health infrastructure and health care system.

To assign appropriate weights to indicators of food security we have used the technique of principal component analysis, which is a special case of factor analysis. Food availability index, food production index, self- sufficiency ratio index, inverse relative food prices and the child survival rate index are assigned the numerical value of 0.65557, 0.591, 0.9825, 0.1866 and 0.9864 respectively. There are several other indicators that affect collectively food security but in our analysis, due to lack of data availability, we have considered only five of them which emphasize availability, access, absorption, and stability aspects of food security.

### **Food Availability:**

Food availability refers to average per capita availability of food in a country but it is measurable in terms of calorie. Sufficiency of the national food supply, the risk of supply disruption, national capacity to disseminate food and research efforts to expand agricultural output depend on food availability. It is measured across five indicators (The Economist Intelligence Unit Limited 2012), which are sufficiency of supply, public expenditure on agricultural research and development (R&D), agricultural infrastructure, volatility of agricultural production and risk of political stability. It is often said that the world produces enough food to feed. The Green Revolution of 1960s ushered in the productivity gains. Technology enabled seeds to absorb more water and fertilizer, expanding crop yields but those gains, however, are decreasing for the first time since Green Revolution. Crop yield growth is increasing at a slower rate than the population. In some places, fertilizer use has reached saturation and water availability is now much lower than it once was. The combination of slow returns on technology and growing global population has made sufficiency of future food supplies uncertain.

### **Objectives and Methodology:**

This study is an effort to evaluate and analyze how various economic and non economic factors affect food security in India. But the emphasis will be on the vital and the main factors governing it. The major objectives of the study are to calculate food security index for India and to study the stability property of the indicators of food security as well. The research hypotheses of the study are as under:

RH<sub>1</sub>: Food Security index for India has been stable since 1991

RH<sub>2</sub>: The individual indicators of food security- the availability of food, the production of food, the self- sufficiency ratio, inverse relative prices and the child survival rate- have been stable since 1991 in India.

For calculating Food Security Index first we took the indicators- per-capita food availability index, per capita food production index, self- sufficiency ratio index (SSRI)- which are derived from the value of output divided by value of output minus exports plus imports:

$$SSRI = \frac{O}{O-X+M}$$

Index of inverse relative food prices (IRFP) is obtained from consumer price index divided by food price index:

$$IRFP = \frac{CPI}{FPI}$$

And child survival rate index (CSRI) is calculated by means of child mortality rate:

$$CSRI = \frac{1000-UFMR}{1000} \text{ where, UFMR= under five mortality rate.}$$

For assigning weights to different indicator variables principal components analysis (PCA) has been used. By means of rotated factor loading (pattern matrix) the following results were obtained:

Table:1

Variable	Factor 1	Factor 2	Factor 3	Uniqueness
Child Survival rate	0.9864	-0.972	-0.0280	0.0168
Per capita food availability	-0.6557	-0.2597	0.4708	0.2809
Per capita food production	-0.0591	0.7718	-0.0147	0.4006
Self sufficiency ratio	0.9825	0.0794	0.0182	0.0281
Food price	0.1866	0.4416	0.4702	0.5491

From the above table factor loadings from column one for giving weights to different indicator variables are extracted; we have therefore given weights to child survival rate, per capita availability of food, per capita food production, and food price as 0.9864, -0.6557, -0.0591, 0.9825, 0.1866 respectively. For constructing food security index we assume year 2000 as a base year for the Indian economy so that we can easily understand how per capita availability, per capita food production, self-sufficiency ratio index, inverse price relative index, and child survival index are stable and with the help of these five indicators we calculate a new index of food security for India (FSI).

Food production and net food imports are translated into food availability in terms of calorie, protein and fat intake. India has made reverse progress in terms of average per capita daily intake of calorie intake since 1993. The average consumption of calorie, protein and fat was 1983 Kcal/day to 1792 Kcal/day during 2009-10 (NSSO). While the average consumption of protein slightly increased in the period 1993-1994 to 2009-10 (55.12 per capita/day to 57.4 per capita per day), the average fat consumption in India has also increased during the period 1993-94 -2009-10 (36.11 per capita/day to 45.12). If we compare it from SAARC and developing and developed countries, we find that the average consumption of calorie in SAARC countries increased from 2280 Kcal/day in 1990-92 to 2340 Kcal/day during 2003-05 and in developing countries it was, 2670 Kcal/day and in a developed country, average calorie consumption was 3380 Kcal/day. These facts reveal that India is very far away from SAARC, developing and developed nations (FAO). Calorie consumption per capita in India is given below

Table 2: Per capita per day calorie (Kcal)

Year	Very poor	Poor	Non-poor low	Non-poor High	Over all	
	Rural					
1983	1577	1938	2269	2825	2218	
1987-88		1590	1939	2252	2835	2299
1993-94		1491	1720	1925	2339	1982
1999-00		1465	1746	2015	2503	2141

2004-05	1561	1833	2106	2578	2244
2009-10	1415	1597	1766	2052	1823
Urban					
1983	1486	1757	1993	2416	1986
1987-88	1570	1828	2051	2494	2097
1993-94	1458	1682	1880	2324	1987
1999-00	1475	1714	1916	2346	2079
2004-05	1656	1880	2071	2528	2182
2009-10	1353	1501	1624	1816	1710
All					
1983	1544	1879	2180	2663	2136
1987-88	1582	1905	2194	2715	2233
1993-94	1478	1707	1910	2333	1983
1999-00	1469	1735	1985	2437	2118
2004-05	1612	1850	2096	2561	2223
2009-10	1401	1579	1739	1966	1792

Source: Various rounds of NSSO

### Accessibility:

Since 1991 the real per capita Gross Domestic Product (GDP) depicted positive growth in India. It picked up momentum after 2003-04 but, however, the slowdown in growth of GDP has taken place as a result of recent global financial crisis. Despite this, Indian economy was not affected as much as other economies. The growth rate of GDP of the Indian economy is given below:

Table:03

Gross Domestic Product at Factor Cost (at 2004-05 prices) in %

1991-92	1.4
1992-93	5.4
1993-94	5.7
1994-95	6.4
1995-96	7.3
1996-97	8.0
1997-98	4.3
1998-99	6.7
1999-00	7.6
2000-01	4.3
2001-02	5.5
2002-03	4.0
2003-04	8.1
2004-05	7.0
2005-06	9.5
2006-07	9.6
2007-08	9.3
2008-09	6.7
2009-10	8.6



2011-12 9.3  
Source: CSO

In India since 1991 the number population below poverty line has declined. In 1993-94 total poverty ratio was 45.3 per cent and in 2009-10, it was 29.8 per cent. Annual average decline in poverty ratio, from 1993-94 to 2004-05, was 0.74 per cent and during the period 2004-05 to 2009-10, it was 1.48. The facts related to poverty are given below in the following table:

### Number and Percentage of Poor\*

Table:04

Year	No. of poor (Million)			Poverty Ratio (%)		
	Rural	Urban	Total	Rural	Urban	
1993-94	328.6	74.5	403.7	50.1	31.8	45.3
2004-05	326.3	80.8	407.1	41.8	25.7	37.2
2009-10	278.2	76.5	354.7	33.8	20.9	29.8
Annual Ave. Dec. 1993-04	-	-	-	0.75	0.55	0.74
Annual Ave. Dec. 2004-10	-	-	-	1.60	0.96	1.48

Source: Planning Commission, \*Estimated by Tendulkar Method.

Due to the high food prices per capita, real income declined and as a result the expenditure on food has also declined; calorie intake reduced and it affected health status adversely. Food insecurity is not reduced in the absence of proper food absorption which is related to various factors such as nutrition, education, health infrastructure, gender disparities, sanitation, access to safe drinking water, the availability and accessibility to food. The indicators such as immunization coverage, infant mortality, and child mortality, prevalence of undernourishment, life expectancy, health infrastructure and public investment in health are the determinants of food utilization capacity of the population. The tables given in the appendix (Table No. 11, 12, & 13) describe nutritional deficiency, educational and health expenditure (Central & State both), and access to safe drinking water. From the tables No 11,12, and 13, it is clear that the state of nutrition, education and health in India is unsatisfactory.

### The Results:

We have calculated food security index for India with base year 2000 and found out that food security index in India gradually improved. In 1991 it was 119.54 which is lower than the base year index, 144.54, and highest in the year 2011; it was 178.42. But it declined sharply in 2002 and then improved but again in the next year in 2004, it showed a downward trend. The food security index for India further improved, (table: 5).

For checking stability of food security index we have applied Chow Test and we calculated F ratio and found out that the food security index had been stable for India since 1991(1991-2011) (table: 5).

Similarly, stability of per capita availability index, per capita food index, self-sufficiency ratio index, inverse relative price index, and child survival rate index is tested and we find that per capita food availability index has been stable (table: 6). Self-sufficiency ratio index and inverse relative price index have been highly unstable. Per capita food production index too has been unstable. The child survival index is very much stable( table:10).

It is therefore concluded that the food security index, food availability and child survival rate indices have been stable whereas food production, relative prices and self sufficiency ratio are unstable. It may also be observed that food security index is stable at a low level and hence the problem of food security still exists in India. As the food security index constructed is based on PCA for the assignment of weights to five indicators , it has its own limitation. It may be less efficient since it neglects information on co-variation (or correlation) among the indicators. The indicators themselves may not be independent .

To solve food security problem the government must introduce new income generation programmes and strengthen existing income generation schemes in such a way that people have income and thus access to sufficient food.

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### Appendix:

Table: 05 (Base year 2000=144.65)

Year	Food Security Index
1991	119.54
1992	126.63
1993	127.92
1994	129.26
1995	128.16
1996	134.62
1997	131.56
1998	142.47
1999	144..09
2000	144.65
2001	153.22
2002	135.22
2003	152.25
2004	147.10
2005	158.41
2006	160.82
2007	170.69

2008	174.37
2009	170.06
2010	176.87
2011	178.42

Source: Calculated

Table: 06 Per capita availability (Base Year=2000)1991 112.23

1992	103.13
1993	102.10
1994	103.68
1995	108.99
1996	104.59
1997	110.67
1998	98.38
1999	102.48
2000	100.00
2001	91.57
2002	108.74
2003	96.27
2004	101.80
2005	92.94
2006	97.95
2007	97.40
2008	95.97
2009	97.70
2010	96.50
2011	96.44

Source: Food Agriculture Organization (FAO)

Table: 07

per capita production (Base Year =2000)

1991	98.74
1992	98.89
1993	102.47
1994	102.37
1995	97.78
1996	100.71
1997	100.65
1998	101.23
1999	103.68
2000	100.00
2001	130.90
2002	83.72

2003	97.20
2004	91.75
2005	96.10
2006	95.72
2007	100.39
2008	101.47
2009	93.03
2010	98.05
2011	103.70

Source: Agriculture statistics at a glance

Table: 08 Self-sufficiency Index (Base year =2000)

Year	Self-sufficiency ratio Index
1991	81.78
1992	83.09
1993	83.96
1994	86.36
1995	88.54
1996	92.25
1997	93.45
1998	96.07
1999	100.65
2000	100
2001	103.48
2002	95.31
2003	105.12
2004	103.27
2005	109.16
2006	114.72
2007	124.53
2008	127.26
2009	123.22

2010	128.22
2011	130.86

Source: Agriculture statistics at glance and Ministry of trade and commerce

Table: 09 Inverse Relative Food Price Index, Base Year = 2000`

Year	Food Price Index/Consumer Price Index
1991-92	103.60
1992-93	103.03
1993-94	102.88
1994-95	102.85
1995-96	102.51
1996-97	103.23
1997-98	101.67
1998-99	103.71
1999-00	103.31
2000-01	100
2001-02	99.38
2002-03	99.46
2003-04	99.83
2004-05	99.59
2005-06	99.68
2006-07	100.62
2007-08	101.42
2008-09	102.11
2009-10	103.68
2011-12	107.71

Source: 1-Labour Bureau Shimla ,CPI, CSO

Table: 10 Child survival rate index (Base year =2000)

Year	Child survival rate index
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1991	99.99689s
1992	99.99689
1993	99.99809
1994	99.99799
1995	99.99789
1996	99.99799
1997	99.99829
1998	99.99899
1999	99.99919
2000	100
2001	100.0001
2002	100.0005
2003	100.0005
2004	100.0006
2005	100.0010
2006	100.0020
2007	100.0025
2008	100.0020
2009	100.0025
2010	100.0030
2011	100.0042

Source: Sample registration system (SRS), Office of registrar general, India

Table 11: Nutrition deficiency (%)

Year	Very poor	Poor	Non-poor low	Non-poor High	Over all
	Rural				
1983	73.11	39.76	20.30	9.10	31.18
1987-88	73.03	40.10	19.63	6.73	26.40



1993-94	82.47	58.70	40.50	23.25	42.75
1999-00	85.87	59.84	32.72	11.21	31.53
2004-05	79.32	48.86	22.83	7.02	23.03
2009-10	75.83	52.86	26.41	8.63	27.57
	Urban				
1983	63.01	35.29	17.70	7.09	26.38
1987-88	53.06	27.01	13.29	4.63	19.18
1993-94	64.52	39.72	22.94	8.04	24.49
1999-00	64.90	37.20	19.67	5.51	18.22
2004-05	42.59	21.39	10.31	3.00	13.55
2009-10	58.02	35.22	20.03	7.08	16.18
	All				
1983	69.43	38.30	19.46	8.31	29.49
1987-88	65.41	36.06	17.81	5.99	24.03
1993-94	75.38	52.31	34.79	16.82	35.94
1999-00	77.21	52.31	28.69	8.79	26.57
2004-05	59.56	38.72	19.45	5.68	19.83
2009-10	71.64	49.48	25.19	8.06	24.49

Source: Various rounds of NSSO

Table : 12

Expenditure on Education and Health (Central and State Government) per cent of GDP		
2004-05	2.60	1.16
2005-06	2.60	1.23
2006-07	2.72	1.25
2007-08	2.56	1.22
2008-09	2.87	1.31
2009-10	3.04	1.36

2010-11	3.13	1.29
2011-12 (RE)	3.25	1.29
2012-13 (RE)	3.31	1.36

Source: RBI as obtained from Budget Document of Union and State Govt. (2004-05 to 2012-13)

Table : 13

Access to safe drinking water								
1991			2001			2011		
Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
62.3	55.5	81.4	77.9	73.2	90.0	85.5	82.7	91.4

Source: Office of the Registrar General, India, Ministry of Home Affaire (1991, 2001, 2011)

## DOES FINANCIAL INTEGRATION INDUCE A HIGHER LEVEL OF PUBLIC DEBT? – EMPIRICAL EVIDENCE FROM THE MINT COUNTRIES

Muhammad Kabir, Salihu<sup>1</sup> & Abdulmalik Mohammed Yusuf<sup>2</sup>

<sup>1</sup>Lancaster University, United Kingdom.

<sup>2</sup>Ahmadu Bello University, Zaria, Nigeria.

Email Address: [yuussuufu@gmail.com](mailto:yuussuufu@gmail.com)

[m.salihu@lancaster.ac.uk](mailto:m.salihu@lancaster.ac.uk)

### Abstract

*This study investigates the relevance of the Azzimonti, et al., (2012) theoretical model which suggests that as financial markets become internationally integrated, governments chooses a higher level of public debt. We evaluated these predictions using a set of panel data from 1970-2011 for the MINT countries. We find that indeed, there is a strong positive correlation between a change in the index of financial integration and change in the level of real public debt, and this finding is robust for both de jure and de facto measures of financial integration. We also find that financial integration has a positive impact on economic growth, while higher debt to GDP ratio negatively affects growth. However, we observe that financial integration, tends to have a larger influence on growth than the debt to GDP ratio. Finally, we conducted a series of robustness check for our model, and conclude that in general, our model is robust to various specification and estimation techniques.*

**Keywords:** Financial integration, public debt, economic growth.

**JEL Codes:** E62, F36, H63, O43

### 1. Introduction

It is almost a decade since the last financial crisis that shook the health of the world's economies. So far, one enduring lesson from the crisis accentuates the need for a more sustainable financial integration that can enhance diversification of risks across borders. Indeed, financial integration can positively benefit a country in several ways: first, it can boost investment and economic growth (Michalopoulos, et al., 2009; Saito and Osada, 2010; Kose, et al., 2011). It may also facilitate the development of the banking system and the efficiency of domestic equity markets (Chinn and Ito, 2005). Also, financial integration, by providing access to global financial markets, may enhance efficient risk sharing and smoothing of domestic consumption (Kose, et al., 2007); and it can improve the quality of market discipline and fiscal rules (Simone and Guido, 2009).

Financial integration, via its impacts on tax revenue (Genschel, 2001; Devereux, et al., 2003) and government expenditure (Fatàs and Mihov, 2003; Liberati, 2006) can stimulate the effectiveness of fiscal deficit policies. But with the ease of access to external financing, it may also spur excessive debt accumulation, particularly for countries with fragile fiscal structures. If this is the case, the growth effects of financial integration can be undermined in the short run (Ranciere, et al., 2006). Moreover, countries with a more integrated market economy, are more likely to be exposed to financial shocks or crisis that may arise due to excessive credit growth and falling lending standards (Giovanni and Marquez, 2006). This in turn have a tendency to heighten fiscal deficits, instead of reducing it. Against this

background, greater financial integration could have global systemic consequences and strain the fiscal position of governments, when policies meant to address the shock increases moral hazard.<sup>1</sup> A relevant example of how financial integration could undermine a country's fiscal policy choice is the sub-prime mortgage lending crisis, which started in the U.S. before spreading to the Euro area and emerging market economies. The crisis led to the bailout of some financial institutions that were termed as globally systemically important and increased government contingent liabilities in terms of high debt to GDP ratio (IMF, 2012).

The empirical evidence for the link between financial integration and fiscal policy choices, however, remain inconclusive. For instance, whereas Kim (2003) finds that capital account liberalization leads to fiscal tightening and hence, reduce budget deficits (the disciplinary effects), Irina and Shang-Jin (2004) finds no strong causal effects of financial globalization on public finance. More recently, Azzimonti, de Francisco and Quadrini (2012) developed a theoretical political economy model in which higher level of public debt is positively related to financial market liberalizations and inequality. Using a panel data analysis for the OECD countries, the authors finds that empirical data supports the prediction of their model. My research seeks to examine the relevance of the Azzimonti, de Francisco and Quadrini (2012) theoretical model using empirical data for the MINT countries – Mexico, Indonesia, Nigeria and Turkey.<sup>2</sup> Although, these countries are disparate groups rather than a bloc, they share certain common economic fundamentals such as young, growing and ambitious population; advantageous geographical location, as well as being commodity producers (exclusive of Turkey) <sup>3</sup>. Besides, based on the Chinn-Ito (2008) financial openness indicator, the levels of capital account liberalization in these countries are similar, while data from the World Bank development indicators revealed that the average level of debt to GDP ratio for the MINT have been above the international threshold suggested for emerging economies (like theirs) by the IMF. These considerations are what prompted us to ask whether financial integration induces a higher level of public debt in the MINT countries. The paper proceeds as follows. In section two, we present stylized facts on the MINT countries' economy. Section three describe the data and empirical strategy. Section four analyses the results, and section five concludes the paper.

## **2. Stylized Facts on Debt to GDP Ratio and Real GDP growth in the MINT Countries.**

Data from World Bank development indicators showed that the MINT countries' public debt to GDP ratio (i.e. total gross central government debt over GDP) has averaged between 16.27 and 26.48 percent in the 1970's and rose to between 44.04 and 80.83 percent in the 1980's. However, in the 1990's and early 2000, the average public debt to GDP ratio for the MINT countries hovered around 53.52 percent and 72.87 percent, respectively, but reduced to 31.53 percent in 2006 before rising to 48.14 percent in 2011 (see figure 1). Although, level of debt intolerance threshold varies across each country, Reinhart, et al., (2003) observes that it is

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<sup>1</sup> Although, empirical evidence in support of this claim is inconclusive. On the balance, panel data analysis suggests that rapid financial integration increases the probability of financial crisis in the short run (see Kaminsky and Reinhart, 1999 and Bonfiglioli and Mendicino, 2004).

<sup>2</sup> The acronym MINT was coined by the famous Economist, Jim O'Neil, who is known for coining acronyms for countries with promising abilities to become next economic giants.

<sup>3</sup> See: *BBC news*. (2014) The Mint countries: Next economic giants? 6th January. Available from: <http://www.bbc.co.uk/news/magazine-25548060> [Accessed: 04 March 2016]

predominantly dependent on the history of default, level of financial development and inflation. For instance, the IMF, in its 2011 World Economic Outlook averred that the debt intolerance threshold for countries with highly industrial activities is 75 percent of GDP, while that of the emerging markets (like the MINT countries) is a little above 25 percent. This means that, since the last decade, the MINT countries' debt to GDP ratio has effectively been above the international threshold suggested by the IMF.

Despite these facts, the average real GDP growth for the MINT countries has oscillated between 10.72 percent in 1970 and 4.93 percent in 1980, 2.16 percent in 1981 and 9.03 percent in 1990, 3.31 percent in 1991 and -0.85 percent in 1998. The average growth rate, however, reached a peak of 13.11 percent in 2004, before declining to 0.51 percent in 2009 during the height of the global financial crisis. In 2010 and 2011, the growth rate averaged 7.07 percent and 5.97 percent, respectively (see figure 2). Of course, it can be easily noticed that the higher debt to GDP ratio did not directly inhibit growth in the MINT countries. A possible explanation for this is that financial globalization has increased significantly in the past few years. Indeed, an analysis of the various indices of financial openness revealed that the world financial markets have increasingly become less regulated in the last few decades.<sup>4</sup> Consequently, important fiscal spill-over effects via international bond markets have been reported in various studies, see, for example, Beetsma, et al., (2005), Quadrini, et al., (2009), and Peter, et al., (2012).

### 3. Data and Empirical Strategy

This section describes the sources and definitions of the main variables used in the study; the model specification and estimation techniques adopted.

#### 3.1 Data Description

The sample consisted of annual observational data over the period covering 1970 – 2011, for the MINT countries. The choice of this time period is due to the availability of data for the index of financial liberalization variable.

To measure financial openness, we made use of two broad measures of financial integration indices, i.e. *de jure* measure proxy by Chinn and Ito (2008) capital account openness indicator and the *de facto* measure draw upon the work of Philip and Gian (2007).<sup>5</sup> Fundamentally, this study relates the change in the level of a country's real public debt to the change in the financial integration indices. Other fiscal variables that were included in the data are the ratio of public debt to GDP of a country, and the growth rate of GDP.

Chinn and Ito capital account openness indicator is available from the database constructed by Menzie Chinn, and Hiro Ito ([www.web.pdx.edu/~ito/Chinn-Ito\\_website.htm](http://www.web.pdx.edu/~ito/Chinn-Ito_website.htm)), while data for *de facto* measure of financial integration can be sourced from the database constructed by

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<sup>4</sup> See Obstfeld and Taylor (2005) and Abiad, et al (2008)

<sup>5</sup> The *de jure* measure as proposed by Chinn and Ito (2006, 2008) is an index of capital account openness based upon disaggregated capital account restriction measures extracted from the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions, while the *de facto* measure as proposed by Philip and Gian (2007) is the share of the total stocks of foreign assets and liabilities to GDP

Philip Lane ([www.philiplane.org/EWN.html](http://www.philiplane.org/EWN.html)). Data for fiscal variables were sourced from World Bank databank.

### 3.2 Model Specification and Estimation Techniques

Since samples for the study are panel data models, we made use of the fixed effect (regression) model structure [as in Azzimonti, de Francisco and Quadrini (2012)] because of its ease of reducing time-invariant characteristics from the predictor variables or the threat of omitted variable bias. The fixed effect regression equation model takes the form specified below:

$$d.Pdebt_{i,t} = \beta_p.Pdebt_{i,t-1} + \beta_G d.GDP_{i,t} + \beta_f d.Fin_t + \beta_S Sfin_t + \mu_{i,t}, \quad (i)$$

$$d.GDP_{i,t} = \beta_r d.Rdebt_{i,t} + \beta_p.Pdebt_{i,t-1} + \beta_f d.Fin_t + \mu_{i,t}, \quad (ii)$$

Where the dependent variable for the first regression equation,  $d.Pdebt_{i,t}$  is a log-change in the level of real public debt of country  $i$  in period  $t$ ; real debt is constructed by multiplying country  $i$ 's debt to GDP ratio by real GDP<sup>6</sup>. The regression coefficients include  $\beta_G$ ,  $\beta_f$ ,  $\beta_S$ ,  $\beta_r$ , and  $\beta_p$ , respectively, and  $\mu_{i,t}$  is the residual error term, which captures the country and year fixed effects.

A brief description of the explanatory variables used in the first regression equation is given below:

$Pdebt_{i,t-1}$ : Country  $i$ 's debt to GDP ratio at period  $t-1$ . This variable captures the relationship between the lagged stock of debt and its natural log.

$d.GDP_{i,t}$ : Country  $i$ 's lag real GDP growth in period  $t$ . The inclusion of this variable is meant to elicit information on the business cycle effects of government debt. The justification for the inclusion of this variable, is based on the Saito and Osada (2010) theoretical model which assert that growth in a country's economy is capable of improving government revenue base and decreasing automatic expenditures, and hence leads to a lower increase in government debt in the next period.

$dFin_t$ : is a log-change in the financial integration index in period  $t$ . This index is not country specific but a weighted average of all the country indexes where weights are given by the country's relative total GDP shares. The motivation for computing a weighted average of financial integration for the four countries in the sample is to take into consideration the capital controls imposed by other countries so as to determine the ease with which government can sell its debt to foreign (private) investors.

$Sfin_t$ : is size times the lag change in financial integration (where size is the lagged logarithm of real GDP) in period  $t$ . The variable  $Sfin_t$  is to elicit the effect of size heterogeneity on the debt issued by the financially integrated countries. Based on the theoretical model by Azzimonti, de Francisco and Quadrini (2012), the effects of financial

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<sup>6</sup> Debt to GDP ratio as defined here is total gross central government debt over GDP

liberalization are resilient for smaller countries because of their inability to influence the world interest rate. However, given access to international financial market, government in smaller countries have higher incentives to borrow.

For the second regression equation, the dependent variable is  $d.GDP_{i,t}$ , i.e. the real GDP growth of country  $i$  in period  $t$ . This variable is regress on the lag change of real public debt,  $d.Rdebt_{i,t}$ , and  $Pdebt_{i,t-1}$ , which is country  $i$ 's debt to GDP ratio at period  $t - 1$ .

Thus, we estimated two fixed-effects regression equations. The first regression equation analyses the effect of financial integration on public debt, while the second equation elicits information on how growth is affected by debt and financial integration.

Finally, in order to check the robustness of our results, we estimated a generalized method of moments (GMM) dynamic panel data model, developed by Arrellano and Bond (1991). The use of the GMM estimator allows us to deal with potential endogeneity problems in the regressors by generating instruments from the lags of the regressors.<sup>7</sup>

#### 4. Empirical Analysis and Results

The first set of results is presented in table 1. The first column reports findings where the explanatory variables includes lag debt to GDP ratio, lag real GDP growth and lag change in financial index, while in the second column, we added the interaction term between size and the financial integration index. As evident in the four columns of the table, the coefficient of financial integration index is positive and highly significant at 1 per cent level. This implied that there is a positive correlation between a change in the index of financial integration and change in the level of real public debt. Although, the regression does not imply causation, the strong statistical significance level is an important indicator that a percentage change in the index of financial integration (proxy by the *de jure* measure) accounts for 0.52 percent increases in the level of real public debt (i.e. column 2). However, when the index of financial integration is proxy by the *de facto* measure, a percentage change will account for 0.48 percent increases in the level of real public debt (i.e. column 4).

We also find that the business cycle effect (proxy by the change in GDP) is statistically significant at 10 percent level for *de jure* measure, and not significant for the *de facto* measure of financial integration. However, their coefficient is negative as theoretically expected. This indicates that when the economy performs well, the revenue base of government increases thereby leading to a less increase in the level of real public debt. As regards the lagged debt to GDP ratio, we find that the lagged stock of debt is positively correlated with its change. This is what is expected in the short-term before it tends to converge to negative in the long-term level.<sup>8</sup>

Finally, the coefficient of size heterogeneity is negative and statistically significant at 1 per cent level for the *de jure* measure of financial integration, thereby supporting the assertion

<sup>7</sup> We also conducted model specification tests using Hausman's specification test and a cross-validation method, to check the robustness of our model.

<sup>8</sup> Quadriani, et al (2009) explains this mechanism fully.



that the effects of financial integration is stronger for countries with smaller economy relative to the large world market which they face in a financially integrated environment. This incentivize smaller countries to issue more debt as they tend to perceive a less sensitive world interest rate compared to their own per-capita debt.

Table 2 reports the country fixed-effect regression result analyzing the effect of real GDP growth on the level of real debt, debt to GDP ratio and an index of financial liberalization. The first column of table 2 showed findings when the measure of financial integration is based on the *de jure*, while in the second column, the *de facto* measure of financial integration is used. Evidently, the coefficient of real public debt is statistical significant at 5 per cent level for the *de jure* measure, and positively correlated with growth in real GDP. This indicates that a percentage point increase in the level of real public debt increases GDP growth by 0.057 percentage point. However, the coefficient of debt to GDP ratio is negative and statistically significant at 5 per cent per cent level, for both measures of financial integration. This implied that higher debt to GDP ratio have the tendency to slow growth by 0.009 and 0.003 percentage points, respectively, depending on the measure of financial integration. These findings are in line with previous studies<sup>9</sup> that have analysed the impact of debt on economic growth. Furthermore, the index of financial integration is significant for both measures of financial integration and positively associated with real GDP growth supporting the assertion that financial integration has the potentials to boost economic growth.

**Table 1: Public debt and financial integration – FE Estimates**

	(1) <i>De Jure</i> Measure of FI	(2)	(3) <i>De Facto</i> Measure of FI	(4)
<b>Dependent Variable: Real public debt</b>				
Debt to GDP ratio	0.0191*** (0.0015)	0.0160*** (0.0003)	0.0112* (0.0039)	0.0140*** (0.0024)
Real GDP growth	-0.0155 (0.0105)	-0.0167* (0.0059)	-0.0006 (0.0173)	-0.0104 (0.0072)
Financial index	0.3990*** (0.0560)	0.5243*** (0.0600)	1.0571*** (0.1396)	0.4754*** (0.0643)
Size X financial index		-0.5630*** (0.0484)		-0.1362 (0.3286)
Country and Year FE	Yes	Yes	Yes	Yes
Observations	164	164	164	164
R-squared	0.615	0.837	0.671	0.848
F-statistics	83.62	200.091	289.783	218.076
Number of Countries	4	4	4	4

Notes: Robust standard errors in parentheses

All variables (except GDP growth rate) are transformed into log form

\*\*\* p<0.01, \*\* p<0.05,

\* p<0.1

<sup>9</sup> See Patillo (2002); Reinhart and Rogoff (2009), and Checherita and Rother (2010).

**Table 2: GDP growth and financial integration – FE Estimates**

	(1) <i>De</i> Measure	(2) <i>Jure</i> <i>De Facto</i> Measure
<b>Dependent Variable: Real GDP growth</b>		
Real debt	0.5709** (0.1329)	0.0611 (0.1030)
Debt to GDP ratio	-0.0090* (0.0030)	-0.0030** (0.0009)
Financial index	0.1408* (0.0507)	0.3538*** (0.0553)
Country and Year FE	Yes	Yes
Observations	164	164
R-squared	0.794	0.926
F-statistics	25.068	160.813
Number of Countries	4	4

Notes: Robust standard errors in parentheses

All variables (except GDP growth rate) are transformed into log form

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

#### 4.1 Robustness Check

We estimated a dynamic panel GMM estimator in order to confirm the robustness of our result. Table 3 and 4 reports the one-step results of the GMM estimates. Clearly, our results are robust to the dynamic panel GMM estimators as the estimates shows similarity to those obtained from the country fixed-effects regression results.

Also, we conducted a cross-validation of our model in order to assess the accuracy and validity of the model. This is done by dividing the dataset into two parts, and then, estimating the model using only one part of the dataset. This model is then used to predict the dependent variable to see if the model does a good work in terms of predicting something that has not been used in the estimation. In addition to cross-validation, we also carried out a Hausman's model specification test to determine whether the coefficients of the fixed effects estimators are significantly different from that of the random effect estimators. We find that in general, our model is robust to these specification tests.<sup>10</sup>

**Table 3: Public debt and financial integration – GMM Estimates**

	(1) <i>De Jure</i> Measure	(2) <i>De</i> Measure <i>Facto</i>
<b>Dependent Variable: Real public debt</b>		
Debt to GDP ratio	0.0159*** (0.0004)	0.0140*** (0.0020)
Real GDP growth	-0.0166***	-0.0107*

<sup>10</sup> Results are not included here, but can be made available upon request.

Financial index	(0.0047) 0.5272*** (0.0488)	(0.0064) 0.4794*** (0.0559)
Size X financial index	-0.5663*** (0.0404)	-0.1503 (0.2933)
Year FE	Yes	Yes
Country FE	No	No
Observations	160	160
Wald Chi-sq	689.527	366.724
Number of Countries	4	4

Notes: Robust standard errors in parentheses

All variables (except GDP growth rate) are transformed into log form

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 4: GDP growth and financial integration – GMM Estimates**

	(1) <i>De Jure</i> Measure of FI	(2) <i>De Facto</i> Measure of FI
<b>Dependent Variable: Real GDP growth</b>		
Real debt	0.5697*** (0.1139)	0.6443*** (0.0985)
Debt to GDP ratio	-0.0089*** (0.0025)	-0.0108*** (0.0022)
Financial index	0.1391*** (0.0426)	0.0413 (0.1270)
Year FE	Yes	Yes
Country FE	No	No
Observations	160	160
Wald Chi-sq	146.507	761.24
Number of Countries	4	4

Notes: Robust standard errors in parentheses

All variables (except GDP growth rate) are transformed into log form

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## 5. Conclusion

There is much discussion about the impacts of financial integration. Recent developments in the theoretical and empirical literatures suggests that financial integration can spur economic growth, induce investments, and facilitate the development of domestic equity markets. Despite these benefits, Kose, et al., (2011) have pointed out that, a country with financial openness may face potential risks of negative growth if certain threshold conditions are not attained. These threshold conditions include the fact that, financially integrated economies should strive to achieve institutional quality and financial depth by maintaining a low debt to GDP ratio. However, it has been observed that, the integration of financial markets

(especially in the Euro Area) comes with an attendant increase in the level of government bonds held by foreigners (Elena, 2013). Consequently, Azzimonti, de Francisco and Quadrini (2012) presented a multi-country political economy model in which governments' incentive to issue bond increases, when financial markets are internationally integrated.

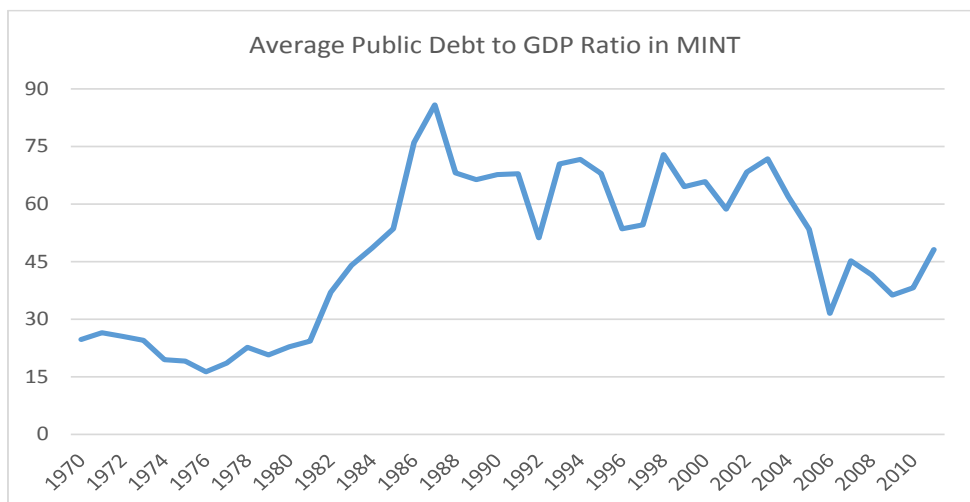
In this paper, we reviewed the importance of their model, using empirical data for the MINT countries. Our result supports the theoretical model that financial integration induces higher level of government debt. While we do not claim that this implies causation, it is important, however, to stress that the highly significant positive relationship between a change in the index of financial integration and change in the level of real public debt for both measures of financial integration is a useful guide to the direction of influence.

Based on the different measures of financial integration (i.e. *de jure* and *de facto*), this study confirm that financial integration is positively correlated with growth. Although we found out that higher debt to GDP ratio negatively affect growth, financial integration, however, has a larger influence on growth than the debt to GDP ratio. Moreover, based on *de jure* measure of financial integration, we found out that smaller countries tend to optimize agents' welfare by issuing more debt, relative to larger countries, thus supporting the theoretical evidence in Azzimonti, de Francisco and Quadrini (2012) that, size plays an important role in determining the effectiveness of financial integration.

An important implication of this study is the need for an extensive research on the direction of causality between rising level of public debt and change in the index of financial integration. Understanding the path of causation will be an important step in evaluating whether better access to external financing, induced by financial markets integration, helps trigger sovereign debt crisis, for as Azzimonti, et al. (2012) rightly observes, if debt crisis is more likely to result from higher level of public debt, then financial integration is a likely contributor to it.

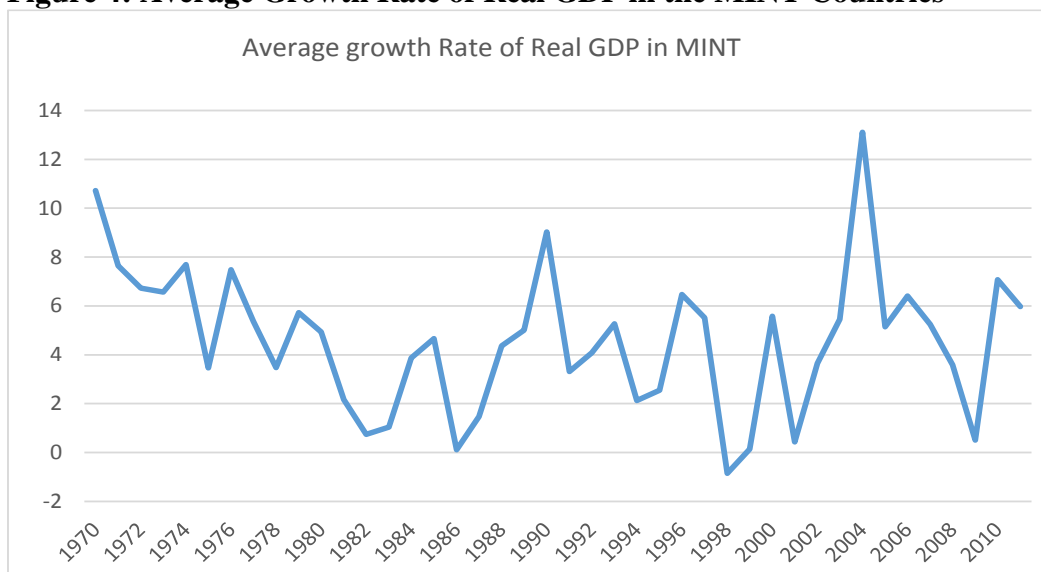
## Figures

### Figure 3: Average Public Debt to GDP Ratio in the MINT Countries



Source: Author's own calculation based on data from World Bank Development Indicator

**Figure 4: Average Growth Rate of Real GDP in the MINT Countries**



Source: Author's own calculation based on data from World Bank Development Indicator

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## THE IMPACT OF NON-OIL EXPORT ON THE NIGERIAN ECONOMY

Adegoriola Adewale E.<sup>1</sup>, Anthony A. Ayo<sup>2</sup>, Awujola Abayomi<sup>3</sup>  
<sup>1 & 2</sup>Department of Economics, University of Abuja, Abuja, Nigeria  
<sup>3</sup>Department of Economics, Bingham University, Nigeria  
Presenting author: adegoriolae@yahoo.com

### ABSTRACT

*The decline in price of oil in recent years has led to a decrease in the funds available for distribution to the three tiers of government in Nigeria. The need for federal, states and local governments to generate adequate revenue from other sources like non-oil export have therefore become a matter of extreme urgency and importance. Hence, this study investigates the impact of non-oil export on Nigerian economy. The data used were secondary source and the period of analysis covered 1970 – 2014. The study employed OLS technique and annual time series data of variables were used and in order to know the impact of non-oil export on economic growth. Stationarity of the data was checked that is, the data was tested for unit root using Augmented Dickey – Fuller (ADF) test. This is to prevent spurious regression (Gujarati 2007:820). The result shows that non-oil export exact significant impact on GDP, but the average impact of such impact is negative. This suggests that GDP significantly increases due to a unit increase in non-oil export. Both openness and exchange rate individually exact positive impact on GDP over the period under review, however, that of openness does not indicate significant impact. This emphasizes the need to diversify Nigerian economy from its dependency on oil through the promotion of non-oil exports as a major source of foreign exchange earnings. The role of non-oil exports can be more effective by enhancing export assistance and incentive programmes aimed at assisting exporters to expand their volume and value of non-oil exports and encourage a meaningful diversification of the economy.*

**Keywords:** Non-oil Export, GDP and Nigerian Economy

### 1.0 INTRODUCTION

Nigerian economy since 1970s has been a mono-economy relying heavily on oil as its major source of foreign exchange earnings. The implication is that the dynamics of the economy is at the whims and caprices of the price of oil, which for the most part, has been volatile (Enoma and Mustafa, 2011). The major fallout of this fragile structure of the Nigerian economy is a situation where the economy has been growing without creating jobs and reducing poverty (Onodugo, 2013). The on-hand explanation to this economic paradox is that the oil sector that produces about 90% of export earnings are in the hands of less than one percent of the Nigerian population dominated by expatriates and members of the political class who control production and the proceeds respectively. Worse still, the sector is disconnected from other tiers and sectors of the economy and thus offers little or no linkage and multiplier effect to the economy as a whole.

The adverse consequences of over dependency on oil trade heightened the need and call to diversify Nigerian economy away from oil towards the direction of non-oil export trade. Proponents of this increased proportion of non-oil export argue that the non-oil trade has great potentials to propel Nigerian economy to the desired growth and development. For instance, Onwualu (2012) maintained that the value chain approach to agriculture has the potentials to open up the economy and generate various activities which are capable of creating jobs and enhancing industrialization and thus makes the non-oil sub-sector to hold the aces for future Nigerian sustainable economic growth.

Every country in the world strives to achieve high economic growth and development. Depending on the policies and strategies put in place by one country or the other, the goal remains the same for all to sustain it. According to Opara (2010), exports now constitute important national goals. It has been argued that the economic development of any nation has some strong relationship with the export performance of the country. Thus, countries that adopt robust export policies can move their economies to a higher level of economic growth and development. Many countries today are involved in the exportation of certain goods and services and the purpose is not only to acquire foreign exchange reserves but also to gain from the other benefits that arise from export, which improves balance of payment position, creates employment and development of export-oriented industries in the manufacturing sector and improves government revenue through taxes, levies and tariffs. These benefits will eventually transform into better living condition for the nationals of the exporting economy since foreign exchange derived would contribute to meeting their needs for some essential goods and services (Onayemi and Akintoye, 2009).

Prior to the discovery of oil in Nigeria, the economy depended on the exportation of agricultural commodities. In 1969 the oil sector accounted for less than 3 per cent of Gross Domestic Product (GDP) and a modest US\$370 million in exports (42 per cent of total exports) and more than half of GDP was generated in the agricultural sector. By 1980, the oil sector had come to account for nearly 30 per cent of GDP, oil exports totaled US\$25 billion (96 per cent of total exports) (NCEMA, 2008). The discovery of oil gave Nigeria new opportunities to expand the economy. As more revenues flowed from the production of oil, Nigeria began the importation of raw materials from other countries, thus improving trade with the rest of the world. The revenue derived led to the growth of the industrial sector, which hitherto was characterized by inactivity due to low demand for “made in Nigeria” goods. The oil boom of the Seventies led to import substitution industrialization and the establishment of new firms and the foreign oil companies increased job creation, which lowered the unemployment level. The job opportunities, concentrated in the major urban centres, induced rural dwellers to abandon the low-paying and backbreaking land cultivation to migrate to urban areas for less tedious, yet high paying jobs. High wages meant an increase in productivity and output indicating economic growth for the country. Without a doubt, Nigeria has benefited tremendously from the discovery of oil.

One of the major policy concerns over the years has therefore been how to expand non-oil export in a bid to diversify the nations export base to increase its contribution to GDP. It has been postulated that export expansion improves economic development but requires incentives in the area of finance in developing nations (Okunnu and Adeyemi, 2008). The

existence of governmental incentives is aimed at assisting developing countries boost their exports, such as export incentive or promotion programmes which are public policy measures that seek to enhance exporting activities at the company, industry or national level.

Export promotion strategy is commonly referred to by many scholars as governmental efforts to expand the volume of country's export through export incentives in the form of public subsidies, tax rebates, special credit lines and other kinds of financial and non-financial measures designed to promote a greater level of economic activities in export industries so as to generate more foreign exchange and improve the current account of the balance of payments (Todaro and Smith, 2006). Export promotion features as a prominent component of the economic development strategies adopted by developing countries (Ahmeda et. al., 2002). Countries such as India, Bangladesh, Brazil, Malaysia, and Ghana have all adopted export programmes as incentives to boost their exports.

The Nigerian Export Promotion Council (NEPC) was established in 1976 and charged with the responsibility to administer the export incentives, which were designed to encourage a meaningful diversification of the economy. One of the goals of the government's trade strategy is to adopt export-led growth policies that support non-oil exports so as to diversify and the economy from its dependency on oil. Therefore, this study aims to examine the impact of non-oil export on economic growth.

The main objective of the study is to investigate the effect of the non-oil export on Nigeria's GDP between 1970 and 2014. Specifically, the research is set to pursue the following:

- i. To determine whether non-oil export had an impact on GDP
- ii. To assess the effectiveness of promoting non-oil exports as a strategy for economic growth in Nigeria.

For the purpose of analysis, this study is divided into five sections; the first section is introduction of the topic under review. Section two of the study is the literature review which reviewed the previous literature, and conceptual issues. Section three contains the methodology, model specification, source of data, and the hypothesis to be tested. Section four will focus on empirical analysis and interpretation of result. Finally, in section five, the conclusion will be drawn and policy recommendations will be made from the findings.

## **2.0 EMPIRICAL REVIEW**

There are several empirical studies carried out on this research topic for countries such as Malaysia, Peru, Chile and Nigeria that study the effectiveness of export support programs and policies on a country's exporting activities. Though the countries differ in terms of export and economic performance, there are some similarities that can be deduced from their experiences.

The study by Ahmeda et. Al, (2002) examined the role of export promotion programmes of Malaysian. The study looks at a cross-sectional study of Malaysian firms in four industry groups and used questionnaires to gather their data. They investigate the channels through which Malaysian firms obtain information on export promotion programs and assess the level

of awareness of 13 export programs among Malaysian firms in four different industry groups. Data collected from 53 manufacturing firms indicated that the available sources of information on export programs were not readily consulted, and the firms' overall awareness of export programs was not high. The results suggested that government agencies, in particular, need to do more to promote their role in developing external trade. Three barriers to export markets were also identified. They are: lack of information about foreign markets and contacts; the complexities of export documentation and procedures and the risks and uncertainties associated with entry into new markets.

Martincus and Carballo (2008) conducted two studies on Peru and Chile respectively and assessed the effectiveness of export promotion in both countries. The first study on Peru tries to provide evidence on the impact of export promotion on the intensive and extensive margins of firms' trade in Peru. The study applied two main micro-econometric techniques, difference-in-differences and matching difference-in-differences to identify the effect of export promotion activities as well as a unique firm-level dataset containing data on exports by product and destination markets and employment over the period 2001–2005. The results suggested that participation in activities performed by the export promotion agency in Peru, PROMPEX, is associated with an increased rate of growth of firm's total exports, number of countries to which the firm exports, and number of products exported. The results support the notion that export promotion programs assist firms in the expansion of their exporting activities.

A similar study by the same authors carried out on Chile also looks at the activities performed by the export promotion agency in Chile, PROCHILE. Their study addressed two issues, whether trade promotion programs have heterogeneous effects over the distribution of relevant export outcome variables and what firms benefit from trade promotion programmes. The theoretical framework of their study relates to externalities and they pointed this out by stating the fact that export promotion policies are kinds of public interventions that might be and have been economically justified on the basis of market failures, primarily in the form of externalities Martincus and Carballo, (2010).

Ramaseshan and Soutar (1996) studied the Australian horticulture industry which comprises of small businesses. Australia might appear to be different from LDCs but they observed that Australia is small, has relatively open domestic markets and needs competitive exporters to prosper. Internal and external factors were studied that affect the export behaviour of firms both private and public and what prompts them to engage in export or not. Questionnaire was used to examine export incentives and barriers for firms and included firms engaged in exporting activities and those that did not engage in export activities. The questionnaire contained five potential export incentives: off-load excess production, opportunity to stabilize demand (stability), growth opportunities in overseas market (growth opportunities), intensity of competition in domestic market (intense domestic competition), and the ability to attract higher prices in overseas markets (higher prices). The results they obtained revealed that limited domestic growth opportunities were the most important reason for exports. This result confirmed their observation that growth opportunities, higher prices and stability were the three most important export incentives. For barriers to export, it revealed that foreign

competition, financial concern, transport concern and market demand were the more important export barriers.

Samieea and Walters (1999) studied Malaysian exporters with 529 observations in total and a survey questionnaire were mailed to each firm. They had up to ten propositions that they investigated to assess the effectiveness of how firms acquire export knowledge and whether it assisted them in their export activity, value of their export and so forth. They used correlation to test for the significance of the propositions and the results revealed that each proposition is significant and positive relationship with the dependent variable, structured export education. Thus, for export development, the greater the number of years of exporting experience a firm has the greater the level of interest in structured export education. For export planning the results also support the proposition that firms with formal export marketing plans demonstrate greater interest in structured export education programs. The data indicated that both measures of export performance (sales proposition and transaction size) are significantly related to the firm's interest in structured export programs.

Another empirical study that provided more light in this area of research include that of Amirkhalkhali and Dar (1995) who examined the role of export expansion in fostering economic growth in developing countries within a production function framework. Their sample consisted of 23 developing countries grouped into four groups based on their orientation, either strongly / moderately inward-oriented or strongly/moderated outward-oriented. They observed in other studies the use of inter-country cross-sectional data. Their analysis took to consideration country specifics, by grouping them as strongly or moderately inward or outward oriented countries. As mentioned in their study, the use of random coefficients model is more general than those adopted in previous studies, not only because it more correctly describes the law relating growth to its determinants, but also permits the impact for those determinants to be country specific. They estimate the model using Swamy-Mehta methods and their result shows a positive significant effect between export growth and strongly oriented group of countries. That is, export growth for countries that adopt outward-oriented policies was higher than for those who adopted inward oriented policies, specifically percentage point increase in exports is predicted to increase the growth rate by about 0.06 to 0.08 percentage points. For the strongly inward oriented group, that increase is a mere 0.015 percentage points. Their result suggests the weakness of strongly inward oriented strategy. They concluded that since export expansion appears to be positively related to the degree of openness of the economy, economic growth is likely to be higher in countries that are more open relative to the strongly inward oriented countries.

Rodgers (1998) examined Indonesian non-oil export success between 1975 to 1994 with a focus on the role of exchange rate management and trade policy. Indonesia, like Nigeria, is one of the OPEC countries and also a country that once depended on oil. Indonesia successfully prevented stagnation in agriculture and manufacturing during and after the 1970s oil boom, and it maintained punctual repayments of large foreign debt obligation in the 1980s when oil earnings collapsed. He used a time series data for six sectors measured by export shares model and studied the structural export demand and supply functions from utility and profit maximization behaviour. Indonesia from the 1970s up to the present adopted 3 policies to overcome the conditions of the oil market in the 1980s. Overall, the study concluded that



price incentives stimulate non-oil exports but the degree of response varies across sectors and that Indonesian non-oil exporters' responsiveness to relative price changes varies widely across sectors, with the greatest impact on textiles, sawn wood and garments.

The literature reviewed up to this juncture describes the studies done on similar topics related to this research for countries excluding Nigeria. The studies provide country experiences and findings which provide aid this research. Nevertheless, it is also good to review what has been done in this area of research with respect to the Nigerian experience.

Okunnu and Adeyemi (2008) examined the economic effect of overreliance on oil export and also try to find role played by authorities to encourage the participation of non oil export both by the private and public sectors. The study recognized that the non-oil sector can contribute more to the export earnings of Nigeria than the oil sector if properly managed and also sincere implementation of various policies aimed at improving the non-oil exports. The study was OLS analysis the variables. He had three models that tested for the relationship between GDP and oil export (OE) and non-oil export (NOE), Three different periods were used 1980-1994, 1995-2003 and 1980-2003. The results indicated that the overall performance of oil exports exceed that of non-oil export. However, on its own non-oil export showed a slight improvement in performance during the period 1995 - 2003 compared with to its performance between 1980-1994 and 1995-2003. The study concluded that non-oil export performance was poor due to the policies of the various tiers of Government to develop the non-oil sector due to the fluctuations in the International oil market. They recommended that Nigeria government needs to invest in the non-oil export sector, more specifically investment in agriculture and the development of mining of solid minerals.

Okoh (2005) study looked at Nigeria's non-oil exports and the reasons why it performed poorly in the global market. The study employs time series data from 1970 to 1999. The model looks at the value of non-oil export as a function of domestic commodity price index, foreign commodity price index, value of non-oil exports, non-oil imports, world income or gross domestic products, and the index of openness and described the structure of Nigeria's non oil export, in which agricultural products constitute about 70%, both processed and non-processed such as cocoa, groundnut, palm produce, rubber (natural), cotton, solid minerals, textiles, tin metal and so forth. As early as the 1960s the commodities market experienced an export boom. However their fortunes declined in the early 1980s when the international primary commodity markets collapsed with the associated deterioration in the terms of trade. Using Johansen's maximal likelihood (ML), the final result of her findings indicated that the global demand for Nigeria's non-oil export merchandise is price elastic. The implication of this is that an upward variation in the relative price of non-oil exports would likely lead to a more than proportionate decrease in the demand for Nigerian non-oil exports.

Olateju and Adeyemi (2007) in their paper look at the performance of Nigeria's non-oil export and economic growth and tried to show whether non-oil export contributed to the economic growth of Nigeria. The economic theory used to support the study is also based on export-led growth, which states that growth in exports increase faster than other components of national expenditure. This can occur either because foreign incomes are growing faster than at home or because domestic products are becoming more competitive in world markets

through lower prices, increased variety or quality improvements. They stated that export-led growth hypothesis have found that exports have been instrumental to Nigeria's growth performance suggesting that Nigeria can enhance her economic growth through export-led growth strategies.

Onayemi and Akintoye (2009) studied the problems associated with the production and exportation of crude oil and specifically looked at the extent to which non-oil export promotion strategies have been effective in increasing the value of total export in general and diversifying the productive base of the Nigerian economy from crude oil as the major source of foreign exchange. Using a times-series data from 1986 – 2004, their study used the economic theory of the Heckscher – Ohlin model which states that countries have the same constant-returns-to scale production functions for each good, but different amounts of capital relative to their labour supply. In the absence of trade, goods which require large amounts of labour relative to capital would be relatively cheaper in the more labour-abundant countries and relative dearer in the more capital-rich countries. If trade becomes possible, countries export goods intensive in the use of their more plentiful factors and import goods intensive in the use of their scarce factor. They make reference to this theory in their study based on the fact that Nigeria has resources in abundance which it can specialize in, such as agricultural commodities, which it can then export to the world while importing capital-intensive materials for the production of its agricultural and manufacturing sectors which it is not endowed with. They concluded by stating that because it takes time for policies to take effect, the impact of the variables on non-oil export performance is not as great as it should be is due to lack of information, administrative bottle necks, etc. Their analysis suggests that Nigeria's non-oil exports on the whole have performed below expectation thereby questioning the efficiency of the export promotion strategies

According to Opara (2010) looked at the role of export marketing as a way to help boost Nigeria's non-oil export with particular interest to export marketing. Using the concepts of export marketing, and the theory of comparative advantage, the study showed that there are opportunities and benefits that exist in non-oil export and the fact that Nigerian firms have comparative potential advantages to export certain non-oil products to both developing and developed countries. The results showed that market opportunities positively impact Nigerian manufacturing firms' export marketing involvement. It also showed that strategies such as export marketing can boost non-oil exports. However, as always, there are many challenges that these firms face which makes it difficult to successfully gain the full benefits of the strategy. Some of the challenges include raw agricultural commodities by Nigerian exporters are processed and sold to Nigerian consumers at a higher prices, lacking of funding from NEPC, and administrative bottlenecks.

Osuntogun et al. (1997) reported that nominal non-oil export earnings fell from N363.5 million in 1973 to N203.2 million in 1982. The decline was even more dramatic in real terms as oil exports in contrast raised phenomenally, from about N2 billion to about N8 billion in nominal terms during the same period. Also continued reliance on developed countries as markets for oil and non-oil exports has caused Nigeria great misfortunes, as recessions in developed countries are usually fully transmitted to Nigeria.



## 2.1 Theoretical Framework

The theoretical framework of this study will be based on export-led growth model. As mentioned in the theoretical review export-led growth is used in many of the studies. This theory looks at growth in which exports increase faster than other components of national expenditure. This can occur either because foreign incomes are growing faster than at home or because domestic products are becoming more competitive in world markets through lower prices, increased variety or quality improvements. This theory is relevant to the study because Nigeria's current policies place emphasis on export promotion, especially that of manufactured goods from Nigeria Opara (2010). Okunnu and Adeyemi (2008) also emphasized this theory stating that number of empirical studies which have investigated the export-led growth hypothesis, have found that exports have been instrumental to Nigeria's growth performance suggesting that in Nigeria export-led-growth hypothesis holds. Therefore, it is imperative for Nigeria to explore all sectors of the economy besides oil, i.e. non-exports, from agriculture to manufacturing to telecommunications, etc.

## 3.0 METHODOLOGY

In this work, Annual time series data of variables from 1970 to 2014 are used and in order for the impact of non-oil export on economic growth to be sustainable or time- invariant, stationarity of the data will be checked i.e. the data will be tested for unit root by using the Augmented Dickey – Fuller (ADF) test. This is to prevent spurious regression. Then pair wise Granger causality tests were also carried out to check the direction of causality. Multiple regression analysis with a dependent variable and some independent or explanatory variables will be employed. Estimates are obtained by employing Least Square method (OLS). Correlation Analysis will be used to determine the nature and strength of relationship between the dependent and independent variables. T-statistics and F test will be used to carry out statistical significance at 95% confidence level. Coefficient of multiple determination ( $R^2$ ) will also be used to judge the strength of the estimated regression equation. Also, Durbin Watson statistic will be used to test for the presence of serial correlation (Autocorrelation), which is also common in time series data.

### 3.1 Model Specification

According to macroeconomic theory, export is an injection into an economy and it is positively related with economic growth. Economic growth is situated in growth model that emphasizes the role of export in promoting growth and development (Todaro and Smith, 2006). Adapting the model of Onayemi and Akintoye, (2009) the model that shows the relationship between economic growth and Non oil export is specified thus:

$$GDP = f(NOX, OX, EXR, NOM, OPN) \quad 3.1$$

Where:

- GDP = Gross Domestic Product
- NOX = Non-oil exports
- OX = Oil exports
- EXR = Exchange rate
- NOM = Non – oil import
- OPN = Trade openness

We can re-write equation (3.1) in a linear form to obtain:

$$\text{GDP} = \beta_0 + \beta_1\text{NOX} + \beta_2\text{OX} + \beta_3\text{EXR} + \beta_4\text{NOM} + \beta_5\text{OPN} + \mu \quad 3.2$$

Where:  $\beta_0$  = Intercept.  
 $\beta_i$  = Parameter estimates, where  $i = 1-5$   
 $\mu$  = Error term, which is assumed to satisfy all the OLS assumptions.

## 4.0 EMPIRICAL ANALYSIS

### 4.1 Test for Stationarity and Co-integration

Since this study deals with time series macroeconomic variables, there is a need to test for unit root in each of the variables employed. The unit root test is carried out using the Augmented Dickey-Fuller (ADF) which is designed to examine the order of integration of the variables.

**Table 4.1-Summary of Stationarity Test**

Variable	ADF-Stat.	Critical Level	Order of integration
GDP	-4.165831	-3.621023	D(2)
NOX	-5.401868	-3.621023	D(2)
OX	-8.443676	-3.621023	D(2)
NOM	-6.898071	-3.621023	D(2)
OPN	-5.972572	-3.615588	D(1)
EXR	-3.724364	-3.615588	D(1)

Source: extract from E-view.

The summary of stationarity results presented above shows that none of the variables included in the model has a stable mean. Specifically, gross domestic product (GDP), non-oil export (NOX), oil export (OX), non-oil import (NOM) became stationary after second difference. However, openness (OPN) and exchange rate (EXR) became stationary only after first difference. The implication of this result is that the conditional mean value of GDP, which is the dependent variable, given each of the regressors is unstable thus the estimated impact of each of the regressors derived from the specified relationship may be misleading. There is a good chance therefore that the relationship that exists between the set of regressors and the regressand is due to trend effect and not of causal relationship. Unless relevant test on the existence of stable mean average value of GDP conditional upon each of the regressors is performed, the analysis carried out in this case may not only be misleading, but also useless. At this juncture, co-integration test comes handy.

This study employs the Johansen co-integration test which permits the identification of multiple co-integration relationships. The number of co-integrating relationship is given by the rank estimate and three possibilities arise: (1) the rank equals  $n$ , all variables in  $y$  are  $I(0)$  (stationary); (2) the rank is 0, there exists no co-integrating relationship between variables and (3) the rank is lower than  $n$ , when there exist a maximum of  $n-1$  co-integrating

relationships Ruxanda and Botezatu (2008). The results of the restricted and unrestricted co-integration rank test, both Trace and Maximum Eigen statistics indicate six (6) co-integrating relationships. These denote rejection of the underlying hypotheses which holds that there is no co-integrating relationship in the data set. The outcome of these tests suggests the existence of a long-run relationship between the dependent and independent variables. This further indicates an existing causal relationship between the explained and explanatory variable set.

Apparently, the outcome of the co-integration tests offer the researcher a “gate pass” to estimating and analyzing the multiple variable linear model specified earlier as presented shortly after Pairwise Granger Causality test that follows.

#### 4.2 Pairwise Granger Causality Test

From the results of the Granger causality test, the technique seeks to verify whether there is a causal relationship between any pair of the variable set either from a one way direction or two ways. More technically, one variable is said to be Granger-cause the other if it helps in predicting the behavior of the other at some stage in the future. The results indicate that GDP granger causes changes in non-oil export but not the other way round, the former also granger causes changes in oil export but not the other way round. While non-oil import and GDP granger cause changes in each other’s values, exchange rate on the other hand granger causes changes in GDP but not the other way round. Two-way granger causality exists between oil export and non-oil export, whereas a one-way flow occurs from non-oil export to non-oil import. Similarly, two-way granger causality exist between non-oil export and oil export, while only one-way traffic, in granger causality, flows from exchange rate to oil export.

#### 4.3 Presentation of Regression Results

**Table 4.2 Regression Result**

Dependent Variable: GDP Total Observations: 41				
Variable	Coefficient	Standard Error	t-statistic	Probability
NOX	53.99038	4.716238	11.44776	0.0000
OX	1.608220	0.077394	20.77955	0.0000
NOM	-1.936269	0.357324	-5.418806	0.0000
OPN	532077.3	1379203.	0.385786	0.7020
EXR	15307.14	2404.681	6.365557	0.0000
C	-90984.63	271371.4	-0.335277	0.7394
R-squared	0.997806	Mean dependent var	4517237.	
Adjusted R-squared	0.997493	S.D. dependent var	7954634.	
S.E. of regression	398298.3	Akaike info criterion	28.76225	
Sum squared resid	5.55E+12	Schwarz criterion	29.01302	
Log likelihood	-583.6261	Hannan-Quinn criter.	28.85356	
F-statistic	3183.901	Durbin-Watson stat	2.501322	
Prob(F-statistic)	0.000000			

As the results above show, -90984.63 is average value of GDP in the absence of the entire regressors (Non-oil export, oil export, non-oil import, openness and exchange rate). Meanwhile holding oil export, non-oil import, openness and exchange rate constant 53.99038 is the average rate of increase in GDP due to one unit increase in non-oil export. This implies that non-oil export exacts, partially, positive impact on GDP over the period under review. The associated t-value of 11.44776 for the slope coefficient is statistically significant at 5%, 35 criterion,  $p < 0.01$ , which means that the impact of the variable on the dependent variable is not only positive but also significant. Similarly, on the average, oil export impacts positively on GDP to the tune of 1.608220 arising from a unit increase in the former. Judging by the t-statistic criterion (5%, 35) = 20.77955,  $p < 0.01$ , the impact of oil on GDP is also statistically significant. Non-oil import exact significant impact on GDP on the basis of the t-criterion, but the average impact of such impact is negative to the tune of -1.936269, all things being equal. This suggests that GDP significantly increases by the stated amount due to a unit increase in non-oil import. Contrarily, both openness and exchange rate individually exact positive impact on GDP over the period under review, however, that of openness does not indicate significant impact. The 532077.3 coefficient of openness holds the average magnitude of increase in GDP due to a unit increase in itself, assuming as before other regressors are held constant. As earlier noted, the variable does not pass the test of statistical significance, at least based on the earlier stated t-statistic criterion. However, exchange rate is statistically significant as it indicates that GDP magnifies by 15307.14 owing to a unit increase in exchange rate, holding other regressors constant. 0.997806 is the proportion of variation in the dependent variable that is explained by the estimated equation. It indicates that the explanatory variables jointly account for variation in GDP to the tune of 99%. Judging by F-statistics criterion (5, 35; 5%) = 3182.901,  $p < 0.01$ , the model so estimated fits the set of data well.

The adjusted R-squared value of 0.997493 indicates the proportion of variance in the dependent variable that is explained by the regressors jointly. This value is arrived at after adjusting for the number of regressors included in the model. To determine the test of hypothesis of the research, we need to compare the t-statistic of non-oil export (NOX) with the tabulated value. The tabulated value with t-k (41-6) degrees of freedom (35) gives us 2.02. The calculated t-statistics for NOX in table 4.2 is 11.44776. Obviously this value is higher than the tabulated value ( $11.44776 > 2.02$ ). This implies that non-oil export has an impact on the Nigeria's GDP.

## 5.0 Conclusion and Policy Recommendations

The results and findings of this study indicate that there is positive and significant relationship between non-oil export and GDP. In the last few years, the impact of non-oil export has been significant and has the potential to make a greater impact on Nigeria's non-oil export sector in the long-run. This in turn will translate to higher foreign earnings as well as gross domestic product and consequently a higher level economic growth. This will also be the driving force in ensuring Nigeria adequately supports the non-oil export sector and

diversifies the productive base of the economy so as to reduce dependency on the oil sector and imports.

Based on the findings of this study and the conclusion, the following policy recommendations are suggested:

- i. The government should put more resources into enhancing and promoting non-oil exports by supporting the NEPC to improve on the effectiveness of administration incentives to non-oil exports.
- ii. Emphasis should be on agricultural exports by creating incentives for the poor farmers to start producing for export in an environment where it is assured that not only will their products reach foreign markets in time, but do so, may go a long way in alleviating poverty.
- iii. Infrastructure amenities like road, railways, telecommunication, and electricity among others which are bottleneck for farmers and manufacturers should be improved.
- iv. Ensure workable agricultural policies that help operators of non-oil sectors have access to cheap capital which will enable them produced higher output.

Nigeria's dependency on oil exports has made it vulnerable to continuous fluctuations in world oil prices have it has no control over. Therefore in collaboration with the NEPC and other relevant government agencies, the government has to encourage non-oil exports by investing adequately through incentives and strike a balance between the oil and non-oil sectors of the economy. This will make Nigerian economy flourish and have alternative source of foreign exchange earnings as a result of the diversification of the economy.

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# ANALYSIS OF THE RELATIONSHIP BETWEEN INFORMAL FINANCIAL INSTITUTIONS AND POVERTY ALLEVIATION IN NIGERIA: A MULTIVARIATE PANEL DATA APPROACH

YELWA, MOHAMMED  
Department of Economics, University of Abuja  
[Yelwa\\_mhmmmd@yahoo.com](mailto:Yelwa_mhmmmd@yahoo.com)  
08036545393

AWE, EMMANUEL O.  
Department of Economics, University of Abuja  
[Pels07@yahoo.com](mailto:Pels07@yahoo.com)  
08065012286

OBANSA, S.A.J  
Department of Economics, University of Abuja  
0806538073

## **Abstarct**

*The concept of Economic growth can be accompanied by an increase in informal employment. Informality may support growth by reducing labor cost and improving competitiveness. However, a well-functioning and regulated informal economy will be a critical prerequisite to achieve sustainable growth. And also, a widespread informality with regard to employment, enterprise and productive activities is frequently perceived as a barrier to full participation in the economy and as a hindrance to long-run economic development and poverty alleviation. This is because the link between, informality, poverty alleviation and growth is not fully understood. This paper seeks to investigate the Relationship between informal financial sector activities and poverty alleviation in Nigeria. A multivariate panel data approach was used with data from 150 informal sector operators in Gwagwalada area council-FCT. Data was collected using structured questionnaire and analyzed with appropriate technique in order to identify the perception of socio-economic impact of Informal sectors on poverty alleviation in Nigeria. The findings revealed that informal financial sector operators has a positive and significant impact on poverty alleviation in Nigeria; while poverty-mentality, illiteracy, high inflation, low infrastructure, access to credit, social safety nets and information dissemination are the major problems encountered by these institutions. The paper recommends among other things the education of the rural poor to embark on viable projects, infrastructural development and favorable government policies so as to make the sector becomes relevant.*

**Keywords:** Informality, Financial sector, poverty alleviation, Economic growth.

## **1. Introduction**



The issue of poverty has since attained a global attention and has been a major concern to many nations particularly the developing countries which Nigeria is one of them. Nevertheless, the developed nations are not excluded in the phenomenon. Poverty has been defined as a situation where a population or a section of the population is unable to meet its subsistence essentials such as basic food, clothing and shelter, including basic education in some economies especially the developed ones. According to the World Bank Development Report (1990), a country could be described as being poor if the per capita income is below US \$370 or very poor if it is below US \$275 at any point in time. In other words, the poor lacks basic necessities of life such as exposure, funds, security, social recognition, hence limited chances of advancement in life in all ramifications.

Nigeria economy has been characterized with the Small and Medium scale Enterprises (SMEs) and its development will enhance the country's sustainable growth and development. The inability of the formal financial institutions to provide financial services to the urban and rural SMEs, coupled with the non-sustainability of government to finance development programs and projects contributed to the slow growth of private sector-led financial institutions in Nigeria. Before the emergence of formal financial institutions, informal microfinance activities flourished all over the country in areas of job creation and poverty alleviation. (Yelwa et al., 2015).

Informal microfinance is provided by traditional groups that work together for the mutual benefits of their members. These groups provide savings and credit services to their members. The informal microfinance arrangements operate under different names: '*esusu or ajo*' among the *Yorubas* of Western Nigeria, '*etoto*' for the *Igbos* in the East and '*adashi*' in the North for the *Hausas* (CBN, 2000). The key features of these informal schemes are savings and credit components, informality of operations and lower interest rates in relation to the formal banking sector. The informal associations that operate traditional microfinance in various forms are found in all the rural communities in Nigeria (Otu, et al, 2003).

The Central Bank of Nigeria survey (2001) indicated that the operations of formal microfinance institutions in Nigeria are relatively new, as most of them were registered after 1981. Most of the MFI were also registered from 1982 as non-governmental organizations (NGOs). They operate in both urban and rural areas.

The bulk of credit beneficiaries were women, as most of the MFIs began as NGOs that had the promotion of female welfare as the basis for their establishment. Apart from the general belief that rural women are marginalized in terms of economic opportunities and should therefore have separate promotional agenda, the MFIs are of the view that women perform better than men in managing meager resources and promoting micro enterprises. Other reasons were that the ego problem of men makes it difficult for them to solicit for small sums of money; and that cultural practices prevent men from engaging in certain businesses, such as petty-trading, hair-dressing, etc.

Unlike in the money deposit banks, asset based collateral is de-emphasized by the MFIs. Lending is done on group basis and a group is made up of between 5 and 10 clients. The collateral is the collective pledge of the group to repay, based on community recognition. In

addition, the IFIs concentrate on short term financing, owing to the large demand for loans and their limited assets. High percent of their financing was for trading activities. Credit to the service sector was very minimal and the IFIs gave no loans for consumption. All the clients were low-income individuals, operating micro enterprises. The disproportionate coverage of commerce in the loan portfolios of IFIs is attributed to the quick and high returns that come from investments in the sector, compared with the long gestation periods and lower returns that are associated with businesses in agriculture and manufacturing.

However, this paper therefore will establish the need to empower the poor, which has been estimated to be on the increase through the operation of informal financial institutions as a strategy for poverty reduction. Presently, it has become very difficult if not impossible for many Nigerians to live above the poverty line. Accessibility to credit facilities is also very difficult for women and men, farmers and people who are poor. The inability of the formal financial institutions (FFI) to make funds available to reach the poor segment of the population, due to the stringent conditions attached to loan has increased the relevance of the Informal Financial Institutions (IFIs) such as money lenders, Rotating Saving and Credit Associations (ROSCA), cooperative societies and so on, that provide credit service for the needy in short notice with little or no restriction, Adeyemi, (2008).

In relation to the above, the failure of most programmes by successive governments in Nigeria to tackle the menace of poverty among the general population due to political instability, corruption, bureaucratic bottleneck, lack of sincerity of purpose, elitist orientation of the programmes and the unwillingness of the formal financial institutions to grant loans/credit facilities to the poor resulting from non-provision of collateral security have been held responsible for this situation. The concerns generated by the prevalent situation have brought the need to focus attention on the operations of Informal Financial Institutions.

However, it is on this basis that the research questions were formulated:

- i. Is there any relationship between Informal Financial Sector and Small and Medium scale Enterprises in Nigeria?
- ii. Is there any relationship between Informal Financial Sector and Income generation in Nigeria?
- iii. Is there any contributions of the Informal Financial Sector to employment generation in Nigeria?

The main objective of this paper is to assess the nexus between informal financial sector and poverty alleviation in Gwagwalada area council. This study will be of paramount importance to economic decision-makers, as it will guide them with the knowledge and skills needed to tackle the pressing issue of capital inadequacy for the SMEs in Nigeria.

## **2. Literature Review**

Informal finance programme has been viewed as a unique programme for the reduction of vulnerability, and hence the achievement of the Millennium Developmental Goals (Adamu, 2007).

Berko (2001) came up that the 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 dehumanizing of human race practices had been phased out in Nigeria because of Christianity and civilization.

Chukwu (1990) described this type of finance as a kind of insurance coverage for the members of the family both extended and immediate. In such case, common purse exists into which every well-to-do family members is expected to contribute his or her own quota and the funds so contributed can be used to give financial support to any members of the family that is not well-to-do.

Cooperatives are voluntary association or group of people coming from the same socio-economic background who pull their resources together for the purposes of solving their common problems through self-help and mutual trust. Cooperative has been the indigenous mechanism and technique employed by the people to identify their felt needs, choose what they want and take cooperative action to satisfy their needs, (Okonkwo, 2012). In Nigeria, cooperative societies are classified into producers, consumers and financing cooperatives. It is traditionally required that members of any of these informal financial forums should have common economic or social goals which they pursue for the betterment and improvement of their standard of living.

In the views of Osuntogun & Adeyemo (1981), 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 certain time in the year rather than on rotation.

Irobi (2008) defined microfinance as the provision of financial services such as credits (loans), savings, micro-leasing, micro-insurance and payment transfers to economically active poor and low income household to enable them engage in income generating activities or expand/grow the small businesses. Microfinance is sectionally defined as a financial intervention that focuses on the low-income group of a given society. The intervention primarily involves credit services and may also include savings, insurance on credits and savings. Irobi (2008).

However, Paul Streeten, (1998) was opined that poverty can only be defined by the poor themselves because it is only the poor that truly understand the meaning of poverty. Poverty in Gwagwalada area council is highly severe, it is an environment dominated by Gbari indigenes in which the poor lack access to basic amenities.

## 2.2 Informal Sector Activities and Economic Growth in Nigeria

The concept of growth demands analysis of how employment opportunities arise and change with growth process. Economic growth can be enhanced by the increase in the activities of informal economy or employment. For example, in Nigeria the role of informal economy activities is quite commendable even though, there are bottlenecks in terms of size and measurement, because the sector contributed in the areas of job creation, poverty alleviation and enhanced GDP in Nigeria. In order to enhance productivity there is need to integrate labour out of low-quality employment into more productive activities. This could also mean there is a reduction in the proportion of people informally employed would constitute an important element of an employment focused approach to inductive growth. (Aryeetee, 2015)

## 2.3 Empirical Review

Recent studies have shown evidence of positive impact as it relates to first six out of seven Millennium Goals (Adamu, 2007; Irobi, 2008; Wright, 2000; Zaman, 2000; McCulloch and Baulch, 2000), all subscribed to the believe that informal finance is an effective and powerful tool for poverty reduction.

According to Khandker (1998), in his studies using statistical method on assessment of Informal finance among three Bangladesi programs found that every additional takas lent to a woman add additional of 0.18 taka to annual household expenditure. Similarly, in an updated study using panel data in Bangladesh, Khandker (2005), found out that each additional 100 taka of credit to women increase total annual household expenditures by more than 20 taka. These studies showed overwhelming benefit of increase in income and reduction of vulnerability.

On the other hand, some authors have challenged the positive effects of Informal Financial Sector on poverty alleviation. For instance, Hulme and Mosley, (1996) while acknowledging the role of microfinance can have in helping to reduce poverty, concluded from their research on microfinance that “most contemporary schemes are less effective than they might be”. They stated that microfinance is not a panacea for poverty alleviation and that in some cases the poorest people have been made worse-off by microfinance.

Dunn and Arhucle (2001), used an analysis of covariance to examine loans to micro entrepreneurs for 305 households in Peru. The study uses data at two points in time and looked at changes in borrowers relative to control group who have not received micro-credit. ‘The study suggests that there are significant differences between the borrowers and the control of group in terms of enterprise revenue, productivity, fixed assets and employment creation for other people.

Toh and Urata (1994), examined how Japan’s public and private sectors support small and medium-size enterprises (SMEs). Their findings based on a survey of 107 firms revealed that it accounted for about 35-60 percent growths in the productivity of the (SMEs). Similarly, Kim and Nugent (1994), evaluated the effectiveness of private and collective technical, marketing and financial support systems for the Republic of Korea’s small and medium-sized

enterprises and entrepreneurs. They observed that financial assistance was the most critical form of support for Korean's SMEs and that government intervention in finance was very pervasive. The Korean government had made extensive use of parastatal finance institutions, targeted credit (micro-credits) and credit guaranteed schemes.

### **2.3.1 The relationship between Formal and Informal Financial Institutions**

Generally most intellectual debate on informal finances has been viewed from two perspectives namely 'the residual' and 'the dualism' paradigm. The residual paradigm believed that the inefficiencies generated within the formal financial system and the improper way of adaptation of world's formal financial condition led to the existences of informal finance. This paradigm originated from the works of MCKinnon (1973) and Shaw (1973). They argue that informal finance stems from the excessive regulation of the Formal Financial Institution through the use of direct credit policies, interest rate ceilings and preferential allocation of credit which created distortion in the economy. The distortion led to high cost of fund to the poor, rural dwellers, small scale entrepreneurs and other disadvantaged groups thereby accentuating the development of the Informal Financial Institutions.

Furthermore, Bouman and Houtman as cited in Fischer (1994) argue that the rural economies of many Asian and African countries require the financial system to generate turnover of small loans with low risk and low transaction cost, but the banks of formal institutions do not have the managerial capacity to small loans since the local lenders (informal institutions) are already involved in providing such services. In line with this position, Ardener and Fitchette (1992) believed that informal institutions are better than the formal institutions in supplying short term credit/loans to the poor, more closer to their client and are thus in a better position to give recipe to changing financial needs than the formal.

The second perspective which relates to the dualism paradigm believes that IFI exist as a result of other motives beyond the purely economic. According to this school of thought, IFI exist due to subordinate role it plays to the FFI thus creating market segmentation. In their view the occurrence of market segmentation is not due to regulation but because of the fact that the IFI serve in redistributing income among community members and provide a form of social security by meeting their fluctuating liquidity needs (Hugon, 1990 as cited in Soyibo, 1996). While it is costly in formal institution to acquire information about clients, informal utilizes local personal information resulting into a weak legal system which inhibits contract enforcement thereby results in credit rationing of potentials borrower without collateral. The market segmentation can be filled by informal agent as the collateral is replace by reputation, group responsibility and interlinked transaction.

Ardener and Burman (1995) argued further that informal finance is efficient in responding to the socio economic conditions of the poor as a result of the availability of resources without depending on market segmentation. Hill as cited by Ardener and Burman (1995) pointed out that rural poor need not to be learned on the saving habit since they have already engaged in the activities among themselves and need not to resemble any formal institution using the West African economies experience. He continued his argument in 1970s and 1980s with the Indian case study and later concluded that informal credit market evolved faster in rural areas

especially where agriculture predominate and there is concentration of formal finance. In such situation, informal institutions compete with formal institution and still survive the competitiveness, financial viability and low cost of operation (Bouman, 1995).

Informality exist due to inefficiencies caused by market segmentation which prevents the formal institution to enter into the market since the informal cannot help but be replaced by formal one which is tends to eliminate the segmentation as the informal financial system develops and are less efficient in conducting financial transaction. An increasing body of analytical work has attempted to give an explanation to the functioning of credit markets using the new theoretical developments. Challenging paradigms of competitive equilibrium have tried to explore the implication of incomplete market on market segmentation and imperfect information for the operation of credit market in developing countries thus providing a theoretical foundation for policy intervention.

## 2.4 Theoretical Framework

The theoretical framework for this study is rooted to the model by Ravallion and Chen (1997), Deininger and Squire (1998) and Birdsall and Londono (1997), which reported that growth has a positive impact on reducing income poverty. This was also buttressed by Nafziger (2006), in his analysis of poverty alleviation and income distribution propounded that economic growth is the most important factor influencing poverty reduction. However, poverty level for a given country at a given period  $t$  depends on the economic growth. The model is specified as:

$$Pov_t = f(y, \varepsilon) \text{-----} (1)$$

Where:

$Pov_t$  = Poverty

$y$  = the economic growth,

$\varepsilon$  = other factors influencing poverty other than economic growth.

From eq. (1), holding error term( $\varepsilon$ ) constant, it then holds that all variables that influence economic growth are likely to have influence on poverty level, Hence,

$$Pov_t = f(y) \text{-----} (2)$$

Following the economic growth strategy of the analytical framework underpinning poverty reduction which holds that economic growth is a necessary but not a sufficient condition for poverty reduction Nemedi (2001), Obadan (2001) and DFID (2004). Thus, equation (1) above is modified as follows:

$$Pov_t = f(y, O, \varepsilon) \text{-----} (3)$$

Where:

$O$  = other variables required to complement economic growth in modeling poverty.

## 3. Methodology

### 3.1 Nature and sources of Data



This study relied on both primary and secondary data. The primary data was obtained via the administration of questionnaire. A total of 150 questionnaires were distributed across Gwagwalada in FCT to register/operators of informal financial institutions and SMEs, using systematic random sampling procedure; our choice of this technique is to reduce the chances of error which a small population size may cause. In addition, Personal interview was conducted to enable the researcher obtain more information from those who could not express themselves clearly in writing.

However, the secondary data were obtained from the Central bank of Nigeria (CBN), National Bureau of Statistics (NBS) and World Bank data.

### 3.1 Model specification

Based on the model specified by Ravallion and Chen (1997), Deininger and Squire (1998) and Birdsall and Londono (1997), which reported that growth has a positive impact on reducing income poverty. The model was adopted with little modification which is specified as:

$$Povt = f(y, \varepsilon) \text{-----} (1)$$

Where:

Povt = Poverty

y = the economic growth,

$\varepsilon$  = other factors influencing poverty other than economic growth.

Following the economic growth strategy of the analytical framework underpinning poverty reduction which holds that economic growth is a necessary but not a sufficient condition for poverty reduction Nemedi (2001), Obadan (2001) and DFID (2004). Thus, equation (1) above is modified as follows:

$$Povt = f(y, O, \varepsilon) \text{-----} (3)$$

Where:

O = other variables required to complement economic growth in modeling poverty.

Other variables included are as follows:

$$Povt = \lambda_0 + \lambda_1 GDP + \lambda_2 PRIVCRE + \lambda_3 EDU + \lambda_4 INF + \lambda_5 EXR + \lambda_6 LNR + \lambda_7 REPL + \lambda_8 GUAR + \lambda_9 SMEDEV + \lambda_{10} EMPGEN + \varepsilon_{it} \text{-----} (4)$$

Where:

Povt = P = 1 if loan reduces poverty and 0 if otherwise.

GDP = the Gross Domestic Product

PRIVCRE = Private Credit

EDU = Education of entrepreneurs

INF = Inflation rate

EXR = Exchange rate

LNR = Lending rate

REPL = Repayment plan

GUAR = Guarantor

SMEDEV = SME Development



EMPGEN = Employment Generation  
 $\varepsilon$  = other factors influencing poverty other than economic growth.

### 3.3 Methods of Data Analysis

Ordinary least square (OLS) technique was employed in computing the numerical estimates of the constant and co-efficient of the variables in the specified model. The OLS method was chosen because of its optimal properties (best, linear, unbiased, estimate) (BLUE). Also its computation procedure is fairly simple and of course it is an essential component of most other estimation techniques as it has the ability to capture the long term relationship between several variables especially economic variables.

## 4. Analysis of Results from primary data

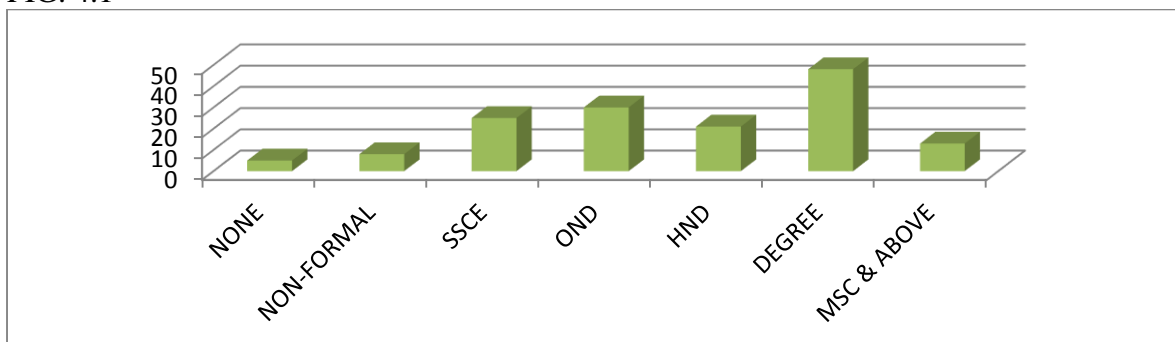
### 4.1 Characteristics of Respondents

**Table: 4.1: Educational Qualification of the respondents**

EDUCATIONAL QUALIFICATION	NO. OF RESPONDENTS	PERCENTAGE (%)
None	5	3.3%
Non – formal	8	5.33%
School certificate	25	16.7%
OND	30	20%
HND	21	14%
Degree	48	32%
Master degree & above	13	8.7%
<b>Total</b>	<b>150</b>	<b>100%</b>

Source: Field Survey, 2016.

FIG. 4.1



Source: Field Survey, 2016.

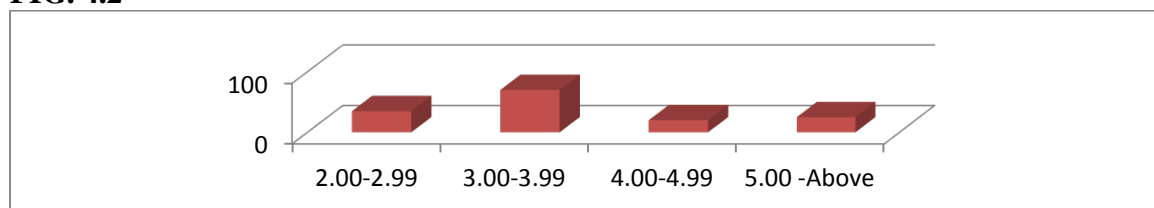
Table:4.1: shows that 5 respondents representing (3.3%) have no educational qualification, 8 representing (5.33%) are educated non formally, 25 respondents (16.7%) have obtained school certificate, 30 respondents (20%) have obtained OND, 21 respondents (14%) have obtained HND. 48 respondents (32%) are first degree holders while 13 other respondents representing (8.7%) have masters degree and above.

**Table 4.2: LENDING RATE**

LENDING RATE (%)	NO. OF RESPONDENTS	PERCENTAGE (%)
2.00 -2.99	35	23.3%
3.00 - 3.99	70	46.7%
4.00 - 4.99	20	13.3%
5.00 – above	25	16.7%
Total	150	100%

Source: Field Survey, 2016.

**FIG. 4.2**



Source: Field Survey, 2016.

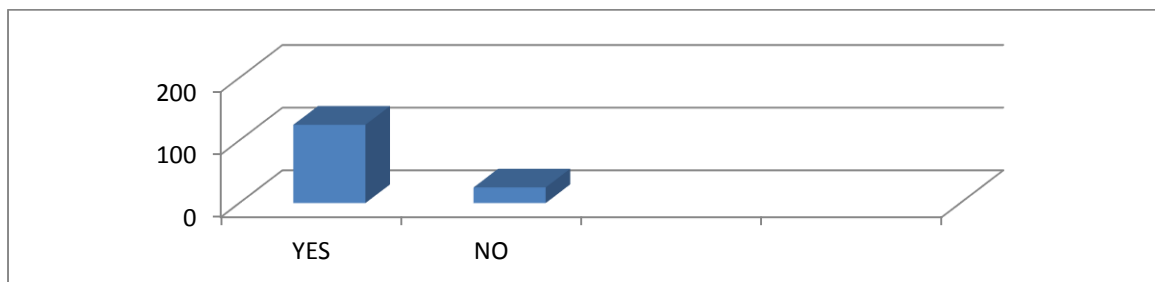
Table: 4.2: shows the distribution of lending rate of the respondents. 35 respondents representing (23.3%) got the loan at the rate 2.00-2.99%. 70 respondents representing (46.7%) had the loan at 3.00-3.99%. 20 respondents representing (13.3%) had it at 4.00-4.99% while 25 respondents representing (16.7%) had it at 5.00- above. This shows that the majority of the respondents got the soft loan between 3.00-3.99.

**Table: 4.3: Mode of Repayment for SMEs operators**

REPAYMENT PLAN	NO. OF RESPONDENTS	PERCENTAGE
YES	125	83.3%
NO	25	16.67%
Total	150	100%

Source: Field Survey, 2016.

**FIG. 4.3**



Source: Field Survey, 2016.

Table: 4.3: shows the conveniences of payment by the respondents. 125 respondents representing (83.3%) agreed to convenience repayment while 25 respondents representing (16.67%) disagreed. This show that majority of the respondents agreed that IFS loan repayment is convenience.

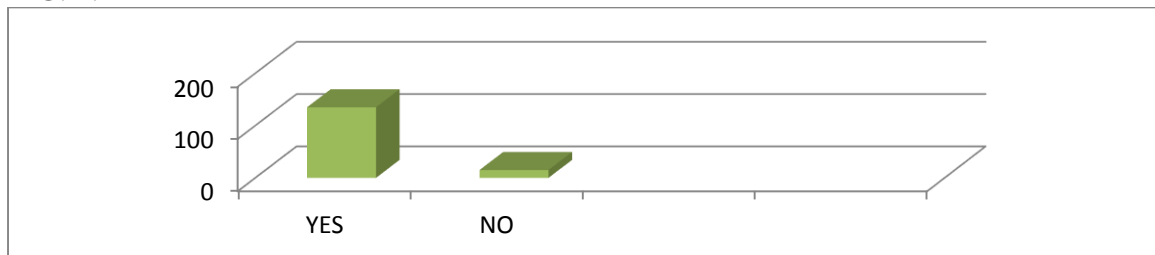
**(ii) Guarantor’s response**

**Table 4.4**

RESPONSE	NO. OF RESPONDENTS	PERCENTAGE
Yes	135	90
No	15	10
Total	150	100

Source: Field Survey, 2016.

FIG. 4.4



Source: Field Survey, 2016.

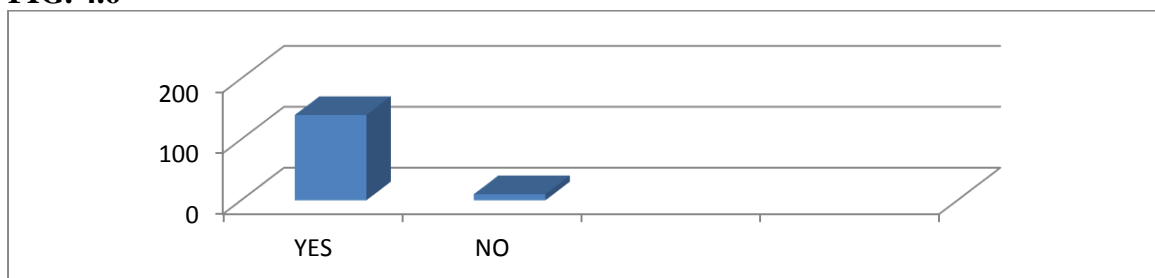
Table: 4.4: shows that 135 respondents representing 90% have guarantors as demanded by the IFI while 15 respondents representing 10% did not. This shows that the demand or procedures in accessing IFI loan is highly relaxed compared to the formal financial institutions

**Table: 4.6: contribution of IFS to SMEs**

RESPONSE	NO. OF RESPONDENTS	PERCENTAGE
Yes	140	93.3%
No	10	6.7%
Total	150	100%

Source: Field Survey, 2016.

**FIG. 4.6**



**Source:** Field Survey, 2016.

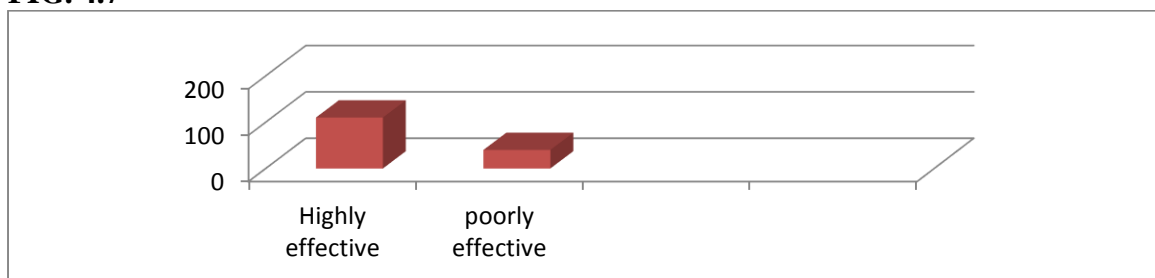
From table:4.6: 140 respondents representing 93.3% are of the opinion that IFS is capable of contributing to the development of SME’s in North Central Nigeria while 10 respondents representing 6.7% are of the opinion that IFS is not capable of contributing to the development of SME’s in North central Nigeria.

**Table 4.7: Credit facilities to SMEs**

RESPONSE	NO. OF RESPONDENTS	PERCENTAGE
Highly effective	110	73.33%
Poorly effective	40	26.67%
Total	150	100%

**Source:** Field Survey, 2016.

**FIG. 4.7**



**Source:** Field Survey, 2016.

Table: 4.7: shows that 110 respondents representing 73.33% are saying that IFS funding to employment generation is highly effective while 40 respondents representing 26.67% are of the opinion that IFS funding is poorly effective

**4.2 Presentation of Results**

The multiple regressions is to be estimated, where the coefficients  $\lambda_1, \lambda_2, \lambda_3, \lambda_4, \lambda_5, \lambda_6, \lambda_7, \lambda_8, \lambda_9$  and  $\lambda_{10}$  to be estimated, are used to measure the contribution of independent variables to dependent variable.

The model is:

$$Povt = \lambda_0 + \lambda_1 GDP + \lambda_2 PRIVCRE + \lambda_3 EDU + \lambda_4 INFL + \lambda_5 EXR + \lambda_6 LNR + \lambda_7 REPL + \lambda_8 GUAR + \lambda_9 SMEDEV + \lambda_{10} EMPGEN + \epsilon_{it}$$

Dependent Variable: POVT

Method: Least Squares

Date: 02/21/16 Time: 23:18

Sample (adjusted): 1 44

Included observations: 44 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.140263	0.476348	-0.294455	0.7702
INF	0.000901	0.001979	0.455433	0.6517
GDPG	-0.002075	0.006482	-0.320180	0.7508
EXR	0.047110	2.011711	2.341321	0.0001
PRIVCRE	0.000165	0.007333	0.022520	0.9822
EDU	-0.128041	0.230514	-0.555457	0.5822
LNR	0.149598	0.091341	1.637805	0.1107
REPL	-0.158744	0.134503	-1.180227	0.2461
GUAR	-0.143129	0.235460	-0.607871	0.5473
EMPGEN	-0.607433	0.166413	-3.650151	0.0009
SMEDEV	-0.306848	0.288538	-1.063458	0.2951
R-squared	0.588439	Mean dependent var		0.818182
Adjusted R-squared	0.510967	S.D. dependent var		0.390154
S.E. of regression	0.304478	Akaike info criterion		0.656281
Sum squared resid	3.152033	Schwarz criterion		1.061778
Log likelihood	-4.438173	Hannan-Quinn criter.		0.806659
F-statistic	4.067087	Durbin-Watson stat		2.069706
Prob(F-statistic)	0.001304			

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

$$Povt = -0.140263 - \lambda_1 0.002075GDP + \lambda_2 PRIVCRE - \lambda_3 0.128041 EDU + \lambda_4 0.0009INFL + \lambda_5 0.04711EXR + \lambda_6 0.149598LNR - \lambda_7 0.158744REPL - \lambda_8 0.143129GUAR - \lambda_9 0.607433SMEDEV - \lambda_{10} 0.306848EMPGEN$$

$$Adjusted R^2 = 0.510961$$

$$S.E = 0.304478$$

### 4.3 Interpretation of Results

The regression result reveals that most of the variables have expected sign. However, the result shows that there is a positive but insignificant relationship between inflation rate, lending rate and poverty level in Gwagwalada area council as well as a positive and significant relationship between exchange rate and poverty alleviation. This result concise with the outcome of Adam et al., (2015) which says that inflation rate has a positive impact on poverty alleviation in Nigeria.

However, the result revealed a negative relationship between Education of entrepreneur, GDP growth rate, private credit, repayment plan, guarantor availability, employment generation

and SME development. From Nguyen, (2003) empirical findings revealed that education is the most important factor affecting household credit facilities.

Bhat et al. (1999) also acknowledged that entrepreneur need formal education in order to comprehend complex information, keep business records, conduct cash flow analysis and make the right business decisions. He concluded that borrower with higher level of education may be considered for higher repayment rates. (Bhat & Tang, 2002).

Lending rate and repayment plans revealed negative impact on growth; the inverse relationship that exists between these variables means that low value of them leads to increase in growth, hence less poverty. This result also corresponds with the work of Mamudu, (2013), which identified an inverse relationship between lending rate and SMEs development in Ghana.

The result is also in relation with Ardener and Burman, (1995) that Informal Financial Sector plays a significant role on SMEs development, employment generation and income generation in Nigeria.

The R-squared value of 0.510967 implies that about 51 percent of the change in the dependent variable was explained by the explanatory variables of the model. It also shows that the model has a good fit.

Conclusively, the general findings of this study shows similarities with earlier studies but most important is that Informal Financial Sector (IFS) face unique problems among which are poverty-mentality, illiteracy, high inflation, low infrastructure and cultural loan-defaults; which affect their growth and profitability and hence, reduces their ability to contribute effectively to sustainable development.

## **5. Conclusion and Recommendations**

The study examines the nexus between informal financial sector and Poverty alleviation in Nigeria using panel data approach. Based on the results it is evidenced that there are relationship between Informal Financial Sector and Poverty alleviation in Gwagwalada area council. We therefore reject all the null hypotheses that these independent variables [Earning after loan (YAL), SMEs development (SMEDEV) and Employment generation (EMPGEN)] has no significant relationship with poverty alleviation in Nigeria; while the alternative hypotheses be accepted.

However, the study recommends that education of the rural poor to embark on viable projects should be encouraged; infrastructural facilities should also be developed so as to reduce the overhead costs of the entrepreneurs which will also help to increase their revenue. The study also recommends favorable government policies so as to reduce loan defaults arising from unviable businesses while this will help to enhance more job creation. There is need for the government to institutionalized the operations of informal sector generally because they have the prowess to create jobs, serves as means of livelihood to rural and urban dwellers etc

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## IMPACT OF FISCAL POLICIES IN DETERMINING THE PERFORMANCE LEVEL OF AGRICULTURE IN NIGERIA

*Sam B.A. Tende, Ph.D*  
*Department of Business Administration*  
*Faculty of Administration*  
*Nasarawa State University, Keffi*  
[tende\\_sam@yahoo.com](mailto:tende_sam@yahoo.com)

*Ezie, Obumneke*  
*Department of Economics and Development Studies,*  
*Federal University Dutsin-ma,*  
*Katsina State, Nigeria*  
[eobumneke@yahoo.com](mailto:eobumneke@yahoo.com)

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### **Abstract**

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*The agricultural sector in Nigeria today has been characterized by low productivity, and as result of this, the Nigerian government introduced series of macroeconomic programmes and policies (such as fiscal policies) aimed at improving the sector performance. Despite all these policies, the share of agriculture contribution to GDP had continued to decline. The study thus tries to investigate the fiscal policies (using government expenditure on agriculture as proxy) and instruments used in promoting agricultural performance in Nigeria and how effective the policies have been in achieving an improved agricultural sector. Survey and descriptive method was employed in analyzing the data. Findings from the study revealed that government expenditures on agriculture have not significantly enhanced agricultural productivity and outputs. Beneficiaries of government agricultural policies in Nigeria are not the actual targeted population group in the agricultural dominated activities. Therefore, there is the need to correct the existing structural distortions in the Nigerian agricultural sector and put the economy on the path of sustainable growth. The study recommends that it is imperative for the country to develop its agricultural sector through sufficient capital and recurrent expenditure spending on the sector. It emphasizes the need to enlighten farmers, improve and provide infrastructures, accord a priority to the sector in budget allocation, enthrone adequate and appropriate extension services, among other measures laid by the government.*

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**Keywords:** Government Expenditure, Fiscal Policy, Agricultural Outputs, Agricultural Policies, and Taxation

### **I. Introduction**

The role of agriculture in transforming the economic framework of any economy cannot be over emphasized given that it is the source of food for man and animal and provides raw materials for the industrial sector. Nigeria has been an agricultural economy and has targeted the agricultural sector as the principal source of growth and revenue, the role of agriculture in the economy has since independence seem to be experiencing a downward trend due majorly to lack of finance. With the increasing food demand in Nigeria, the country has

available natural resources and potential for increasing the volume of crop production towards meeting the food and nutritional requirement of the rapidly increasing population and guarantee food security in the country. Therefore, the source of national wealth is essentially agriculture. With more than half of Nigeria's population currently employed in the agricultural sector (Manyong 2005), and with the vast majority of these individuals living in rural areas, the agricultural sector is the key to Nigeria's economic development.

Fiscal policy is perhaps the single most important policy instrument available to governments of most developing countries for promoting growth and equitable distribution. Aside the fact that fiscal policy is used to improve technology, human capital and infrastructure development necessary for growth, it also provides the incentives and enabling environment to promote private sector investments in order to further growth. Various scholars like Al-Yousif (2000) observed that expansion of government expenditure and a tax contributes positively to economic growth. But, some scholars did not support the claim that increasing government expenditure and taxes promotes economic growth, instead they assert that higher government expenditure and taxes may slowdown overall performance of the economy. In fact, studies by (Landau 1986) suggested that large government expenditure has negative impact on economic growth.

However, inadequate government expenditure on agriculture as well as funding of the agricultural sector has been re-echoed by several experts as an obstacle to increased agricultural productivity (CBN, 2007; Bernard, 2009).

The Nigeria Agriculture Public Expenditure Review [NAGPER] which is a collaborative study carried out by a research team from the International Food Policy Research Institute [IFPRI] and the World Bank; assessed the quantity and quality of public spending in agriculture and evaluates its degree of alignment with government policy goals. The findings of this research showed that expenditures on Nigeria agricultural policies and programmes are still low to ensure effective implementations government policies and programmes on agriculture (Tewodaj et. al, 2005).

Thus, the study tries to investigate the fiscal policies and instruments used in promoting agricultural performance in Nigeria and how effective the policies have been in achieving an improved agricultural sector.

## **1.1 Statement of the Problem**

The agricultural sector in Nigeria today has been characterized by low productivity. Recognizing this, the Nigerian government introduced series of macroeconomic programmes and policies (such as fiscal policies) aimed at improving the sector performance. However, the share of agriculture contribution to GDP declined from 42.20% in 2007 to 40% in 2010 and to a more worsening rate of 35% in 2013 (CBN, 2013). Today, Nigeria is a major net importer of household foods, raw materials etc. with the agricultural sector suffering from a host of problems. The need to correct the existing structural distortions in the Nigerian agricultural sector and put the economy on the path of sustainable growth is therefore compelling.

## 1.2 Objective of the Paper

The objective of the paper is to assess the impact of fiscal policies in determining the performance level of agriculture in Nigeria for the period 1986 to 2014; while we also evaluate the performance of the agricultural sector in Nigeria over the years. Other specific objectives are to:

1. Examine whether Government Agricultural Fiscal Policies Have Improved Nigerian Agricultural Sector
2. Analyze whether the beneficiaries of government agricultural policies in Nigeria are the actual targeted population group in the agricultural dominated activities.
3. Analyze whether there are Sufficient government Funding of Agricultural Policies and programs in Nigeria

## 1.3 Statement of Hypothesis

The following hypotheses have been formulated to guide this study:

**H01:** Government Agricultural Fiscal Policies havenot significantly improved Nigerian Agricultural Sector.

**H02:** The beneficiaries of government agricultural policies in Nigeria are not the actual targeted population group in the agricultural dominated activities.

**H03:** Government funding of Agricultural policies and programs has not been sufficient.

## II. Review of Relevant Literatures

### 2.1 The Concept of Agricultural Output

Agriculture is the production of foods, feeds, fibre and other goods by the systematic growing and harvesting of plants and animals. It is the science of making use of land to raise plants and animals (Akinboyo, 2008). Nigeria's wide range of climate variations allows it to produce a variety of food and cash crops. The staple food crops include cassava, yams, corn, cocoyam, cow-peas, beans, sweet potatoes, millet, plantains, bananas, rice sorghum, and a variety of fruits and vegetables. The leading cash crops are cocoa, citrus, cotton, groundnut, palm oil, plan kernel, benni-seed, and rubber. They were also Nigeria's major exports in the 1960s and early 1970s until petroleum took over the economy, chief among the export destinations for Nigerian agricultural exports are Britain, The United States, Canada, France, and Germany. The oil glut of the early 1980s reduced substantially, inflows of foreign exchange and consequently, participation of government in investment activities. Most of the companies erected at the wake of the oil boom witnessed low capacity utilization and in extreme cases out-right closure (CBN, 2001). This led to a drastic rise in food import bills and the price of imported goods. To redress this situation, the government embarked on integrated programmes aimed at increasing agricultural production and productivity (CBN, 2001). Furthermore Olaokun (1979) explained that agriculture is a source of food and raw materials for industrial sector, it creates more employment opportunities, it helps in the reduction of poverty and improve income distribution, it speeds up industrialization and easing the pressure on balance of payment.

## 2.2 Agricultural sector in Nigeria and its Performance

Agriculture constitutes one of the most important sectors of the Nigerian economy. It is also a veritable tool in combating poverty in third world countries and achieving long-term economic development. Although Nigeria depends heavily on the oil industry for its budgetary revenues, the country is predominantly still an agricultural society with approximately 70% of the population engaging in agricultural production at a subsistence level. Based on the varying climatic conditions of regions and the vast and rich soil, the country produces varieties of crops while a significant portion of the agricultural sector in Nigeria involves livestock production, fishing, poultry, and lumbering, hence, agricultural products were major export product in the 1960s and early 1970s with the sector contribution to the GDP standing at 35% in 2013 (CBN 2013).

Due to the sector's importance successive governments have propounded policy programmes and strategies both monetarily and otherwise to revitalise agriculture in Nigeria from 1960 with all programmes aimed at increasing agricultural output for consumption and export, provide inputs and subsidies to small scale farmers, make credit facilities accessible to a large segment of rural farmers, eradicate poverty, create employment and raise the standard of living. These programmes included the Farm Settlement Scheme policy of 1959, the National Accelerated Food Production Programme (NAFPP) launched in 1972, the Agricultural Development Programme (ADP) of 1974 and 1989, Operation Feed the Nation (OFN) in 1976, the River Basin Development Authorities (RBDAs) was launched in 1976, and the Green Revolution (GR) launched in 1980. The Directorate for Food Roads and Rural Infrastructure (DFRRI) launched in 1986, the Better Life Programme (BLP) For Rural Women introduced in 1987, the National Agricultural Land Development Authority (NALDA) , launched in 1992 , the Family Support Programme (FSP)/ Family Economic Advancement Programme (FEAP) launched in 1994 and 1996 respectively, the National Fadama Development Project (NFDP) of the early 1990s , the National Economic Empowerment and Development Strategy (NEEDS) launched in 1999, the National, Special Programme on Food Security (NSPFS) launched in 2002, the Root and Tuber Expansion Programme (RTEP) launched in 2003, Seven Point Agenda of 2007 and Transformation Agenda of 2011.

According to the National Bureau of Statistics (2012), agriculture provided 41% of the country's GDP, with its contribution to the GDP dropping to 35% in 2013 (CBN 2013). Today, less than 50 percent of the country's cultivable agricultural land is being cultivated with smallholder and traditional farmers who use crude agricultural tools cultivating most of this land. This has not been helped by the discovery of oil in the country. (Manyong et al, 2003). The sector is bedeviled by problems such as organisational and weak policy, limited access to improved technologies in the form of improved seeds and the use of mainly crude farm tools such as hoes and cutlasses. Also, there are infrastructural inadequacies as the sector suffers from poor road network, lack of storage/processing facilities as well as inadequate irrigation facilities and underfunding leading to the problem of high food importation.

Government has played a more dynamic role in agricultural production by ensuring stability of the financial system as well as guarantee sources of credit to the farmers through the manipulation of interest rate. Concessionary interest rate was given to the sector between 1970 and 1985. However, the SAP programme led to the deregulation of interest rates in 1990 and indirect monetary policy control was put in place. Hence agricultural sector had to compete for funding with the other sectors of the economy leading to the stoppage of sectoral credit allocation policy (Gbosi 2005). This led to increased food import bills and hike in prices with food import increasing from 6.36% in 1991 to 27.02% and 30.56% in 1999 and 2011 respectively (NBS 2012). Due to the above negative impact of SAP and to safe-guard the sector from competition as well as enhance flow of credit, the Agricultural Credit Guarantee Scheme (ACGS) was established in 1977 with the share capital of the ACGS increased from ₦199 million in 1977 to ₦3 billion in 2001. Other financial institutions were formed to complement the funding capacity of ACGS. In 2000, the Nigerian Agricultural Commerce and Rural Development Bank (NACRDB) were formed. The National Micro Finance Policy was also launched in 2006 with the aim of creating accessible and easy credit facilities to rural Nigerians. Also Agricultural Credit Support Scheme (ACSS) was established to provide credit facilities to farmers at single digit interest rate with a view to reduce the cost of agricultural production and increase output on a sustainable basis (Ehinomen & Akorah 2013).

### 2.3 Challenges Facing Agricultural Productivity in Nigeria

- i. **Problem of land tenure:** land is one of the most important factors in agricultural production. The land tenure is the way land is owned in a society. The prevailing land tenure systems in the country often discourage agricultural land utilization. Land is owned by inheritance hence land is fragmented over generations. Increase in population has increased the various alternatives to which land can be put. This further puts pressure on all the available land.
- ii. **Problems of Finance or Poor Financing:** Most agricultural activities in the developing countries are subsistent in nature, hence the farmers: (i) are very poor (ii) cannot secure the necessary collateral for loans (iii) cannot have access to enough credit facilities. (iv) Cannot pay the high interest rates on loans either from financial institutions or money lenders. (v) Cannot procure the most sophisticated machines. (vi) Cannot employ agricultural specialists whose salaries and wages are far above what the farmers can afford.
- iii. **Poor Transportation:** This includes (i) Bad roads (ii) inadequate vehicles (iii) Vehicles lack spare parts (iv) High cost of bringing the farm products from rural areas to urban centers. (v) Lack of transportation which increases the activities of middlemen in the movement of agricultural products from the farm to the urban centers where they are consumed. (vi) Lack of transport facilities which increases perish ability of farm crops.
- iv. **Poor Communication:** This includes lack of good radio, television, telephone, telex, fax machines for quick messages and assessment of latest discoveries in the agricultural sector. This makes the professional agriculturists to be unaware of recent developments in his filed.
- v. **Problems of Good Storage and Processing Facilities:** Storage facilities like silo, rhombus, cribs, barns, rafters are inadequate, thus leading to: (a) Perish ability of crops



like tomato, pepper, etc. (b) Pests and diseases which attack farm products (c) Farmers fumigating their products. (d) Glut during harvests and famine outside harvest periods. (e) The quality of farm products being reduced. (f) Farm products wasting. Processing facilities like thresher, miller, grater, canning machine and sealing machines are: (i) Very expensive to procure (ii) Highly technical for local farmers to operate (iii) Very difficult and expensive to maintain.

- vi. **Lack of Good Agricultural education:** Most of the farmers in the developing countries are not educated enough in the technicalities relating to agricultural product, hence, they are: (i) Dogmatic and adamant to changes (ii) Very superstitious in their beliefs (iii) Very suspicious of any new innovation (iv) Unscientific in mind and thinking (v) Not willing to accept technological changes (vi) Very uncooperative, hostile and unaccommodating (vii) Unwilling to even learn how to use and apply fertilizers, insecticides and new farm tools. All these bring about low agricultural productivity.
- vii. **Poor Extension Activities:** Extensive helps in disseminating recent information to a large number of people within a very short time. This is not the case in developing countries because: (i) Extension workers are too ill-equipped for the work. (ii) The period of training is too long. (iii) Language barriers. (iv) Lack of recent research work. (v) The uncooperative attitude of farmers. (vi) Lack of vehicles. (vii) Poor remuneration.
- viii. **Poor Tools and Farm Machines:** Farmers still rely on the use of tools like hoe, cutlass, rake, etc for their activities, instead of using the mechanized implements like ridges, ploughs, cultivators, etc. Poor tools can lead to: (i) Drudgery of the farmer (ii) Time wasting (iii) Short life span of the farmers (iv) Low yield (v) Low farmers income, While machines are: (i) Very expensive to procure and maintain (ii) Highly technical to use (iii) Cannot be used in small farm holdings (iv) Cannot be used in some soils. (v) Cannot be used for some crops like yam.
- xi. **Unstable Policies and Programmes of Government:** Even government comes with different programmes which often tell on the farmers.
- x. **Poor Marketing System:** The sole aim of commercial agriculture is profit making, but this cannot be achieved due to the following: (i) Activities of middlemen who try to remove all the gains, create artificial scarcity, etc. (ii) Poor pricing policies. (iii) Non-functional food commodity boards for food crops. (iv) There is also fluctuation in prices (v) Poor marketing channels for farm produce (vi) Lack of good roads. (vii) Poor storage facilities.
- xi. **Pest and Diseases:** They can: (i) Increase the cost of production (ii) Reduce the quality of farm produce (iii) Reduce the quality of farm produce (iv) Reduce farmers income (v) discourage farmers from further production.
- xii. **Unpredictable Climate:** This includes: (i) Drought or long period without rain which leads to poor harvest. (ii) Flooding or excessive rainfall which reduces yield. (iii) Excessive sunshine, which leads to increase in temperature. (iv) Inadequate sunshine which reduces the photosynthetic ability of plants. (v) Unfavourable climate which also reduces farm activities.
- xiii. **Agricultural Inputs:** They include: agricultural chemicals like insecticides dieldrin dust, aldrindust, fernasan, nematicide like rogor. Inputs like improved seeds and seedlings, improved animal materials like the parent stock in birds are lacking. Agricultural inputs are very expensive. The application of these chemicals can lead to pollination of the environment. Some inputs are very substandard and do not meet the



desired result. Inputs like fertilizers are very expensive and also inadequate. Most of the inputs are imported and are very expensive to procure.

- xiv. **Sociological and Psychological Attitude towards Farming:** Young people feel that farming is for the dropouts or never-do-well in the society and a profession for poor people. Farmers are believed to be low class and the public seldom reckons with them as they do to accountants, medical doctors, lawyers and engineers. Young people also prefer white collar jobs where they can dress impressively.
- xv. **Smuggling:** This means illegal exportation of food. It increases the cost of farm products. It places money in the hands of few individuals. It can cause hunger in the villages, as everybody will now want to engage in smuggling.
- xvi. **Environmental Degradation:** This includes: (i) Pollution of the environment through the activities of the industries. (ii) Soil erosion destroying the structure of land. (iii) Setting up of forest fire, which increases environmental temperature. (iv) Deforestation reduces rainfall, forest trees and land protection. (v) Improper waste disposal can lead to spread of diseases in the environment.

## 2.4 The National Agricultural Policy

There are several policies on agriculture that was initiated in order to improve agricultural productivity in Nigeria. Agricultural policies and strategies are framework and action plans of government put together to achieve overall agricultural growth and development. The policy aims at the attainment of self-sustaining growth in all the sub-sectors of agriculture and the structural transformation necessary for the overall socioeconomic development of the country as well as the improvement in the quality of life of Nigerians.

### 2.4.1 *The National Agricultural Policy*

In an attempt to tackle the problems facing the Agricultural Sector in Nigeria, Government has put in place the National Agricultural Policy, which was jointly formulated by the national stakeholders and International Development Partners and approved by the Federal Government in 2002. The major components of the National Agricultural Policy feed the National Economic Empowerment and Development Strategy (NEEDS) document.

Specifically, the National Agricultural Policy assigns supportive roles to the government, while investments in the sector are left to the private sector initiative. The broad objectives of the National Agricultural Policy include: Promotion of self-sufficiency in food and raw materials for industries; recognition that agriculture is business, hence a private sector concern where the role of government is to facilitate and support private sector initiatives; promoting reliance on local resources; diversification of the sources of foreign exchange earnings through increased agricultural exports arising from adoption of appropriate technologies in food production and distribution, which specifically responds to the needs of women, bearing in mind that they constitute over 50% of the labour force in agriculture.

## 2.5 Problems/challenges of the Agricultural Reforms, Policies and Programmes

Evidence from Oji-Okoro (2011) has indicated minimal positive impact of these reforms/policies. The confirmation stems from the decaying rural infrastructure, declining value of total credit to agriculture, and declining domestic and foreign investment in agriculture. The increasing withdrawal of manufacturing companies from their backward integrated agricultural ventures has reduced investments in the sector considerably. Input supply and distribution have been hap-hazard and inefficient and most agricultural institutions were ineffective prompting its scrapping in year 2000 of some of the institutions established for agricultural promotion. A critical examination of the reforms/policies and their implementation over the years show that policy instability, policy inconsistency, lack of policy transparency, poor coordination of policies as well as poor implementation and mismanagement of policy instruments constitute major obstacles to the implementation and achievement of the goals and objectives of these policies. Policy instability and lack of policy transparency are not unconnected with political instability and bad governance. For example, between 1979 and 1999 the country had five military/civilian regimes. At the federal and state levels, the then Ministers and Commissioners of Agriculture were changed several times on the average of one per two years. Several policy measures were initiated and changed without sufficiently waiting for policy effects or results. At one time or the other, agricultural production passed through periods of protection and unbridled opening up for competition. Also, it passed through era of “no government” and “less .These could all be attributed to poor coordination and faulty implementation of policies as well as mismanagement of policy instruments. Agriculture contributed 42% of Nigeria’s grossdomestic product (GDP) in 2008 (National Bureau of Statistics). However, despite having grown at an annual rate of 6.8% from 2002 to 2006, 2.8% higher than the sectors annual growth between 1997 and 2001, food security remains a major concern due to the subsistence nature of the country’s agriculture (Nwafor, 2008) Many of the strategies used to improve agricultural growth in the past have failed because the programmes and policies were not sufficiently based on in-depth studies and realistic pilot surveys (Adebaya, 2009). This could be attributed to lack of public participation in the design, formulation, implementation and evaluation of policies as well as limited implementation capacity within the sectoralministries and a poor understanding of the details and specifics of polices by implementers (Adebayo et al., 2009). The main factors that influenced the effectiveness of policies on agriculture include high demand for agricultural produce, availability of improved technology, efficient dissemination of information by the ADPs and value added leading to improved income. On the other hand, the common factors responsible for the ineffectiveness of policies and regulations, especially on the downstream segment of agriculture, include instability of the political climate, insecurity of investment, non-standardized product quality, non-competitive nature of agricultural products from the country in the export market due to high cost of production and lack of adequate processing facilities (The New Nigerian Agriculture Policy, 2001).

## **2.6 Review on Nigeria’s Agricultural Public Expenditure**

Most of Nigeria’s poor reside in rural areas and gain their livelihood from agricultural work. If the government’s poverty reduction goals are to be achieved, Nigeria will need an adequate level of strategically targeted investments in agriculture to upgrade rural infrastructure, boost productivity, and increase competitiveness. Before effective investment programmes can be

designed and implemented, however; it is important to have a clear understanding of the current pattern of public spending agriculture. The Nigeria Agriculture Public Expenditure Review [NAGPER]; a collaborative study carried out by a research team from the International Food Policy Research Institute [IFPRI] and the World Bank; assesses the quantity and quantity of public spending in agriculture and evaluates its degree of alignment with government policy goals. The findings of this research showed that expenditures on Nigeria agricultural policies and programmes are still low to ensure effective implementations government policies and programmes on agriculture Tewodajet. al (2005).

- 1. Public spending on agriculture in Nigeria is very low:** Less than 2 percent of total federal expenditure was allotted to agriculture during 2001 to 2005, far lower than spending in other key sector such as education, health and water. This spending contrast dramatically with the sector's importance in Nigeria economy, which ranged from 20 to 30 percent of total GDP since 2000; and falls well 30 below the 10 percent goal set by African leaders in 2003 Maputo agreement Nigeria also falls far behind in agricultural expenditure by international standers, even when accounting for its level of income. Normally, the relationship of income per capital and share of expenditure going to agriculture is negative. Nigeria however, does not conform to this general pattern. GDP per capital is very low, but so too is the agricultural spending share.
- 2. Agricultural spending is broadly aligned with policies, but there are important discrepant discrepancies:** Broadly speaking, agricultural spending has followed government agricultural policies. However, spending is highly concentrated in a few areas. Three programs account for more than 81 percent of total spending: procurement and distribution of fertilizer, the National Special Program for Food Security (NSPFS), and buyer-of-last- resort grain purchase. Nearly 60 percent of total capital spending goes to government purchase of agricultural inputs and agricultural outputs alone. In several instances, public funds are implementing approaches that differ significantly for those described in policy documents. And funding is very low for a number of activities considered vital for promoting agricultural productivity gains leading to pro-poor growth, such as basic and applied agricultural research, agricultural extension and capacity building, agricultural finance, irrigation development, and agribusiness development.
- 3. The pattern of public spending in agriculture raises doubts about the quality of spending:** NAGPER analysis noted that many of the Presidential Initiatives- which differ greatly in target crops, technologies, research, seed multiplication, and distribution-have identical budgetary provisions. This pattern suggests that the needs assessment and costing for these initiatives may have been inadequate, and that decisions may have been based on political considerations rather than economic assessment.
- 4. Analysis of public spending is complicated by the preponderance of off-budget funds:** Public spending on agriculture in Nigeria in not fully captured in official budget records. So-called "off-budget" expenditures overlap extensively with donor funds, because a substantial amount of external aid is typically not captured in government accounts. Reliable data on these two categories of funding proved extremely difficult to obtain, both from ministries and agencies in the sector, from the central ministries, and from the donor community.
- 5. Budget execution is poor:** The Public Expenditure and Financial Accountability (PEFA) best practice standard for budget execution is no more than 3 percent discrepancy

between budgeted and actual expenditures. In contrast, during the period covered by the study, the Nigerian federal budget execution averaged only 79 percent, meaning 21 percent of the approved budget was never spent. Budget execution at the state and local levels was even less impressive, ranging from 21 percent to 44 percent. Government ministries and agencies are only able to plan and carry out effective agriculture programs and activities if approved budgets provide a good indication of actual resources. Other sectors showed similar low levels of budget execution, suggesting that the problem is a general one affecting not only agriculture but most sectors.

**6. Information about the functional areas of public spending in agriculture is lacking:**

At all three levels of government, the budget classification system is not structured along functional lines, such as agricultural extension, agricultural research, input subsidies, and others. Capital spending is reported by sub sector (such as livestock and crops) and/or by department and program. Recurrent expenditures are classified into salaries, benefits and operating costs. An additional classification determining the level of resource allocation to agriculture's core functions would be useful for analysis as well as for policy planning determining, for example, the reason for non-adoption of improved technology. At every level of government, there is a need to commit more effort to organizing, recording, and reporting public spending information in a way that makes transparent the functional allocation of public resources.

**7. Poor data quality and availability hinder policy analysis, program planning, and impact assessment:**

One of the most significant findings of the NAGPER relates to the poor state of the systems for recording, verifying, and reporting data on public expenditure in agriculture. At the federal level, data on public spending in agriculture were not available even in the Ministry of Agriculture's Department of Finance and Accounts and had to be compiled from approximately one dozen technical departments of the Ministry. As two core technical departments (Agriculture Research and Cooperatives) were unable to provide any expenditure data, the database on federal spending remains incomplete. In cases where data were available, the quality was often questionable. The discrepancies between the data obtained from the individual line departments in the agriculture ministry and from the central ministry for budgets were often significant; in some instances figures doubled from one source to another.

## 2.7 Empirical Evidence and Discourse

Nigeria falls far behind in agricultural expenditure by international standards, even when accounting for the relationship between agricultural expenditures and national income. The spending that is extant is highly concentrated in a few areas. They recommended that there is an urgent need to improve internal systems for tracking, recording, and disseminating information about public spending in the agriculture sector.

Ariyo (1993) carried out an evaluation study on the desirability of Nigerian's fiscal profile between 1970 and 1990. The findings from this study suggest that the structures of government expenditure are inherently unsustainable by the country's resources profile. The major cause attributed to this was the phenomenal increase in government expenditure financed through debt raised from both internal and external sources. This has consequently led to persistent and unsustainable annual deficits. The result also suggested that the

structural adjustment programme (SAP) implemented in 1986 has so far not been of much assistance in addressing the problem. The study evaluates the Nigerian fiscal profile and, concluded that it has not been desirable since most expenses are financed through debt.

Again, another study by Ariyo (1993) provides a behavioural explanation for the persistence of huge annual fiscal deficits in Nigeria. The study on deficits financing reveals that the excess expenditure over and above the budgeted estimates was not anchored on any macroeconomic target. It also revealed large revenue and expenditure variances which suggest the absence of any positive effects over the years. The study concluded that the intrusion of the political class which probably nullified the degree of professionalism of the technocrats was the major cause for the variance.

Akpan (1999) uses time series data of 33 years, and the OLS method of regression to analyse the contribution of government expenditures to the growth process in Nigeria. He concluded that capital expenditure on agriculture though not statistically significant but influence positively on investment. Shanggenset'al (1998) in their empirical analysis of government spending, growth and poverty supported the view that government spending enhances the growth in the agricultural productivity. His managerial analysis also shows that additional government expenditures on agricultural research and extension have the largest impact on agricultural productivity growth.

Nkamleu (2007) investigated the sources and determinants of agricultural growth over the last three decades. The analysis employs the broader framework of empirical growth literature and recent developments in Total Factor Productivity (TFP) measurement to search for fundamental determinants of growth in African agriculture. One main contribution is the quantification of the contribution of the productivity growth and the contribution of different inputs such as land, labour, tractor, and fertilizer in agricultural growth.

Lawal and Atte (2011) using descriptive statistics and Duncan multiple range test showed that the overall agricultural production average growth rate was 5.4% and that GDP growth rate, population growth rate, and the Consumer Price Index were the main factors affecting domestic agricultural production. This study recommended the need to increase per-capita productivity through the introduction of improved technology in agricultural production.

Fei-Ran (2008) has been studied the effect of monetary and fiscal policies on the main variables of the agricultural sector with OLS 1971-1991. Results show the government's fiscal policy has a positive effect on agricultural production. Government fiscal and monetary policy had a positive effect on agricultural investment.

Moghaddasi (2008) is examined the major economic variables, monetary and fiscal policies in agricultural sector by using autoregressive integration vectors for the 1971-1997. He concluded that the short-term effect of monetary policy on the agricultural sector is more than fiscal policy, in the long term effects of monetary policy and fiscal policy acts.

Food Policy Research Institute (2008) wrote on public spending on agriculture in Nigeria (2001-2005). An empirical analysis was employed. Findings revealed that public spending on



agriculture was exceedingly low. Less than 2 percent of total Federal expenditure was allotted to agriculture during 2001 to 2005, far lower than spending in other key sectors such as education, health, and water. This spending contrasts dramatically with the sector's importance in the Nigerian economy and the policy emphasis on diversifying away from oil, and falls well below the 10 percent goal set by African leaders in the 2003 Maputo agreement.

## **2.8 Theories of Fiscal Policies: Taxation and Expenditures**

### **2.8.1 Theories of Taxations**

According to Bhartia (2009), a taxation theory may be derived on the assumption that there need not be any relationship between tax paid and benefits received from state activities. Over time, various theories of taxation have been propounded, but this study presents three of those theories and is discussed as follows:

#### **i. Benefit Theory of Taxation**

According to this theory, the state should levy taxes on individuals according to the benefit conferred on them. The more benefits a person derives from the activities of the state, the more he should pay to the government. If, in accordance with the "benefits theory of taxation," we conceive of taxes as payments in exchange for government benefits, perhaps states should be obliged to confer personal tax benefits on residents who contribute to their tax coffers (Bukie&Adejumo, 2013). The benefits theory would imply that a resident should be able to collect personal tax benefits to the extent that her tax payments to the source state exceed the money value of any source state government benefits she already receives, including infrastructure, regulated labour and capital markets, and so on. Although intuitively attractive, the benefits theory of taxation suffers from several major draw backs.

#### **ii. Ability to Pay of Taxation Theory**

The most popular and commonly accepted principle of equity or justice in taxation is that citizens of a country should pay taxes to the government in accordance with their ability to pay. Rather than the benefits principle, the "ability-to-pay principle" generally dominates modern equity discussions. Under the ability to pay principle, people with higher incomes should pay more taxes than people with lower incomes. It appears very reasonable and just that taxes should be levied on the basis of the taxable capacity of an individual. For instance, if the taxable capacity of a person A is greater than the person B, the former should be asked to pay more taxes than the latter. It seems that if the taxes are levied on this principle as stated above, then justice can be achieved. But our difficulties do not end here (Sadmo, 2004). The fact is that when we put this theory in practice, our difficulties actually begin. The trouble arises with the definition of ability to pay. The economists are not unanimous as to what should be the exact measure of a person's ability or faculty to pay.

#### **iii. Diffusion Theory of Taxation**

According to diffusion theory of taxation, under perfect competition, when a tax is levied, it gets automatically equitably diffused or absorbed throughout the community. Advocates of this theory, describe that when a tax is imposed on a commodity by state, it passes on to consumers automatically. Every individual bears burden of tax according to his ability to bear it. Advocates of this theory assume perfect competition in the market but in world of reality, it is imperfect competition which prevails (Sadmo, 2004). If tax gets automatically diffused through the community, then most of worries of finance minister will be over. He will simply impose tax and collect money from people without worrying about final resting place of a tax. In actual practice we find that taxes do not get distributed equally. Some taxes remain where they are imposed first and some are partly or wholly shifted on to me consumers. Diffusion theory of taxation has however been criticized. The diffusion theory of taxation has never gained any importance in the world of reality. It has never been seen that a tax gets automatically equitably distributed among people. It is true that in some taxes, diffusion or absorption does take place but that too is not throughout the community. Accordingly, another criticism of the theory of taxation is that there are few taxes like income tax, inheritance tax, toll tax in which there is no absorption at all.

### **2.8.2 Adolph Wagner's Theory of Government Expenditures**

The earliest theory advanced on public expenditure is that of Adolph Wagner in 1876 which came to be known as "Wagner's law". He propounded the "law of increasing expansion of public and particularly states activities" which is referred to as the "law of increasing expansion of fiscal requirements". The law suggests that the share of the public sector in the economy will rise as economic growth proceeds, owing to the intensification of existing activities and extension of new activities. According to Wagner, social progress has led to increasing state activity with resultant increase in public expenditure. He predicted an increase in the ratio of government expenditure to national income as per capital income rises. It is the result of growing administrative and protective actions of government in response to more complex legal and economic relations, increased urbanization, and rising cultural and welfare expenditures. According to Musgrave, however, it is not fruitful to seek an explanation for the total expenditure. Tests carried out by various researchers have shown that the increase in expenditure is far more complex than is evident from the tests carried out on empirical data. Therefore according to him, it may be far more rewarding to adopt a desegregated approach (an approach which divides the study of expenditures of government) through a study of expenditures of government on capital formation, consumption and transfer payments. Irving (1968) used the law and came up with a different view (Akogwu, 2007). He opined that public expenditure (E) is an increasing function of per capital gross national product (GDP).

### **III. Methodological Framework**

Descriptive method of analysis was employed in the study, while the student's t-test was utilized to examine and test each of the three hypotheses that were raised. The target population were made up of selected registered farmers in North central Nigeria out of which a sample of 220 were derived using Yaro Yamane and used for the analysis.



#### IV. Descriptive Statistics, Statistical Test of Hypothesis and Discussion of Findings

The results obtained under this section were generated using descriptive frequency analysis. The three hypotheses formulated in the study were tested using student t-statistics.

##### 4.1 Descriptive Data Presentation and Interpretation

**Table 1: Respondents' Opinions on Whether Government Agricultural Fiscal Policies In Nigeria Are Good Enough To Transform Agricultural Sector**

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	75	34.1	34.1	34.1
Agree	137	62.3	62.3	96.4
Disagree	5	2.3	2.3	98.6
Strongly Disagree	3	1.4	1.4	100.0
Total	220	100.0	100.0	

Source: Field Survey, 2016

Table 1 above, presented the respondents' opinions on whether government agricultural policies in Nigeria are good enough to transform agricultural sector. From the above table, 75 respondents or 34.1% strongly agreed, 137 respondents or 62.2% agreed, none of the respondent answered undecided, 5 respondents or 2.3% disagreed while 3 respondents or 1.4% strongly disagreed.

The researcher endeavoured to ascertain more information from the respondents in order to know why some respondents accepted and others did not accept that government agricultural policies in Nigeria are good enough to transform agricultural sector. The survey conducted revealed that Nigeria has good agricultural development policies and programmes when compared with some other countries but the respondents however, disclosed these agricultural policies and programmes sometimes fail to achieve the desired results. On the other view, the respondents who answered disagreed and strongly disagreed revealed that the government agricultural policies in Nigeria are still not enough to transform agricultural sector.

**Table 2: Respondents' Opinions on What Constituted Major Objective of Agricultural Fiscal Policies in Nigeria**

	Frequency	Percent	Valid Percent	Cumulative Percent
Diversification of Nigeria economy	95	43.2	43.2	43.2
Strengthening economic development	70	31.8	31.8	75.0
Enhancing agricultural productivity	30	13.6	13.6	88.6
Increasing the country's foreign earnings	25	11.4	11.4	100.0

	Frequency	Percent	Valid Percent	Cumulative Percent
Diversification of Nigeria economy	95	43.2	43.2	43.2
Strengthening economic development	70	31.8	31.8	75.0
Enhancing agricultural productivity	30	13.6	13.6	88.6
Increasing the country's foreign earnings	25	11.4	11.4	100.0
Total	220	100.0	100.0	

**Source: Field Survey, 2016**

Table 2 revealed that in a question directed to ascertain the major objective of agricultural fiscal policies in Nigeria, 95 respondent or 43.2% chose that diversification of Nigerian economy is the major objective, 70 respondents or 31.8% chose that strengthening economic development is to then the major objective of agricultural policies, 30 respondents or 13.6% were of the opinion that enhancing agricultural productivity is the major objective of agricultural policies while 25 respondents or 11.4% said that increasing the country's foreign earnings is the major objective of agricultural policies. From the questionnaire item on question 9, and 10 which asked the respondents which objective appeals most to them and to identify any other five objectives of agricultural fiscal policies known to them, the researcher noted that greater percentage of the respondents indicated that the major objective that appeals most to them is diversification of Nigerian economy. However, many respondents disclosed that other options listed in the questionnaire item question 8 were part of their identify objectives if they were to mention. Only few of some said that other objectives may include; reduction of poverty through agricultural policies since large percent of the Nigerian population depend on it to earn living, some others emphasized that the need to create job through agriculture is another good objective of agricultural policies in Nigeria. In addition, some identified that the need to ensure adequate food supply is another objective. The need to provide the required raw-materials for industrial development was also emphasized as yet another objective while the need to decongest the over dependency on crude oil was extensively stressed by the respondents as part of the objectives. Observation from the respondents showed that objectives of agricultural policies are multi-dimensional in nature.

**Table 3: Respondents' Opinions on Whether They Agree That Government Agricultural Fiscal Policies Have Improved Nigerian Agricultural Sector**

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	95	43.2	43.2	43.2
Disagree	66	30.0	30.0	73.2
Agree	42	19.1	19.1	92.3
Strongly Agree	17	7.7	7.7	100.0
Total	220	100.0	100.0	

**Source: Field Survey, 2016**

As depicted from the table 3 above, 95 respondents or 43.2% strongly disagreed, while 66 respondents or 30.0% disagreed that government agricultural fiscal policies have improved Nigerian agricultural sector. On the other, hand, none of the respondent indicated on the option undecided, 42 respondents or 19.1% indicated agreed while 17 respondents or 7.7% indicated strongly agree. Respondents' opinions showed that an appreciative improve has been achieved but much still need to done since from the world standard, Nigeria is still underdeveloped in agriculture. It is therefore difficulty to admit affirmatively that government agricultural policies have improved Nigerian agricultural sector.

**Table 4: Respondents' Opinions on Whether Agricultural Fiscal Policies And Programs Are Making Significance Impact In The Agricultural Sector**

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly disagree	85	38.6	38.6	38.6
Disagree	70	31.8	31.8	70.5
Agree	40	18.2	18.2	88.6
Strongly agree	25	11.4	11.4	100.0
Total	220	100.0	100.0	

**Source: Field Survey, 2016**

Table 4 above investigates on whether agricultural policies and programmes are making significance impact in the agricultural sector. From the table, 85 respondents or 38.6% indicated strongly disagreed while another 70 respondents or 31.8% indicated disagree in support of the question that agricultural policies and programmes are making significance impact in the agricultural sector. The researcher endeavoured to ascertain further information from the respondents on their acceptance that agricultural policies and programmes are making significance impact in the agricultural sector. These respondents argued strongly that from Gross Domestic Product (GDP) in agricultural sector, an appreciative progress has not been made. This means that an appreciative production level has not been achieved. Some respondents however disclosed that the current agricultural policies and programmes in Nigeria are making significant progress in the sector, but the progress has been very low. For instance, they mentioned FADAMA programmes as one agricultural programmes that is making an immense progress, but has been relatively slow. This is in-line with 40 respondents or 18.2% who agreed with the subject matter, while 25 respondents or 11.4% strongly agreed that agricultural policies and programmes are making significance impact in the agricultural sector.

**Table 5: Respondents' Opinions On Areas That Agricultural Fiscal Policies Have Impacted Positively On The Economy Of Nigeria**

	Frequency	Percent	Valid Percent	Cumulative Percent
Food supply & raw materials	70	31.8	31.8	31.8

Foreign exchange	30	13.6	13.6	45.5
Domestic savings	41	18.6	18.6	64.1
Employment & poverty reduction	79	35.9	35.9	100.0
Total	220	100.0	100.0	

**Source: Field Survey, 2016**

Table 5 examines the respondents' opinions on areas they think agricultural policies have impacted positively on the economy of Nigeria. From the data presented above, 70 respondents or 31.8% indicated that food supply and raw materials are areas of positive impact of agricultural policies on Nigerian economy, 30 respondents or 13.6% were of the view that Nigeria's foreign exchange has relatively increased, 41 respondents or 18.6% said that agricultural policies have increased domestic savings while 79 respondents or 35.9% said that employment and poverty reduction is another area agricultural policies have impacted positively on the Nigerian economy. Findings from the responses revealed that agricultural policies have impacted positively on the economy of Nigeria considering the areas of progress identified by the respondents. However, dominant views from our literature review showed that the results of agricultural policies in Nigeria have achieved little considering their set objectives and government financial investments in the sector. In other words, we do not hold on to the opinions of the respondents to an extreme.

**Table 6: Respondents' Opinions on Whether Formulation Of Agricultural Fiscal Policies Considers Major Agricultural Problems In Nigeria**

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	45	20.5	20.5	20.5
Agree	38	17.3	17.3	37.7
Undecided	9	4.1	4.1	41.8
Disagree	70	31.8	31.8	73.6
Strongly Disagree	58	26.4	26.4	100.0
Total	220	100.0	100.0	

**Source: Field Survey, 2016**

Table 6 examines whether formulation of agricultural policies consider major agricultural problems in Nigeria. Analysis of data in the table showed that 45 respondents or 20.5% strongly agreed while 38 respondents or 17.2% agreed that formulation of agricultural policies consider major agricultural problems in Nigeria. On the other hand, 9 respondents or 4.1% chose undecided, 70 respondents or 31.8% indicated disagree while 58 respondents or 26.4 indicated strongly disagree. Observations from the oral interview conducted by the researcher in this aspect showed that formulation of the public policies in Nigeria is usually characterized by poor identification of problems, such as the social, cultural, geographical, political, economic, biological/environmental problems that may mar the implementation of such public policies. Some agricultural problems tend to be poorly or wrongly defined and as

such policy prescriptions get wrongly directed. Some are defined in abstracts, in absolutes and without cognizance of causal variables. Problems conceptions that do not relate to the context linkages to other problems is multi-causal or because the problem was defined in absolute rather relative terms.

**Table 7: Respondents' Opinions On Whether They Agree That The Implementation Of Agricultural Fiscal Policies Have Always Followed The Implementation Directives Of Policy Document**

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	45	20.5	20.5	20.5
Agree	39	17.7	17.7	38.2
Undecided	3	1.4	1.4	39.5
Disagree	76	34.5	34.5	74.1
Strongly Disagree	57	25.9	25.9	100.0
Total	220	100.0	100.0	

**Source: Field Survey, 2016**

Table 7 examines whether the implementation of agricultural policies have always followed the implementation directives of policy documents. From the table above, 45 respondents or 20.5% strongly agreed and 39 respondents or 17.2% agreed that implementation of agricultural policies has always followed the implementation directions of policy document. On the other hand, 76 respondents or 34.5% disagreed while 58 respondents or 26.4% strongly disagreed that implementation of agricultural policies have always followed the implementation directives of the policy document.

**Table 8: Respondents' View On Whether The Evaluation Of Impact Of Agricultural Fiscal Policies On The Nigerian Economy Is Only Measurable In The Growth And Development Of Agricultural Sector In Nigeria**

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	105	47.7	47.7	47.7
Agree	90	40.9	40.9	88.6
Undecided	2	.9	.9	89.5
Disagree	13	5.9	5.9	95.5
Strongly Disagree	10	4.5	4.5	100.0
Total	220	100.0	100.0	

**Source: Field Survey, 2016**

From the above presented data in table 8, 105 respondents or 47.7% strongly agreed and 90 respondents or 40.9% agreed which implies that the evaluation of impact of agricultural policies on the Nigerian economy is only measurable in the growth and development of agricultural sector in Nigeria.

Observation from discussion or oral interview conducted with some respondents showed that generally, assessment on the impact of agricultural policies is usually measured from their impact to the growth and development on the economy. Apparently, their views are in consonance with the policy aims of the Ministry of Agriculture Policy Guide of 2004 which stipulates that the policy aims at the attainment of self-sustaining growth in all the sub-sector of agriculture and the structural transformation necessary for the overall socio-economic development of the country as well as the improvement in the quality of life of Nigerians. This finding or observation goes further to validate our research hypothesis one which stated that the extent of growth and development in the agricultural sector determine the impact of agricultural policies on Nigeria economy. However, assessment of other views of the respondents showed that 13 respondents or 5.9% disagreed and 10 respondents or 4.5% strongly disagreed to the question that the evaluation of the impact of agricultural policies on the Nigerian economy is only measurable in the growth and development of agricultural sector in Nigeria. To these respondents, evaluation of the impact of agricultural policies on the Nigerian economy should not be limited to growth and development in the agricultural sector. Apparently, this view did not contradict the views of the respondents who answered strongly agreed and agreed. This is because growth and development in the agricultural sector as used here by the researcher correlated with the responses of these respondents who said that socio-economic benefits in terms of adequate of food supply to the people, increase income into farmers, improved productivity, increased foreign exchange, etc. should also be considered as part of evaluation of impact of agricultural policies on Nigerian economy.

**Table 9: Respondents' Opinions on Whether There Is Sufficient Funding Of Agricultural Policies in Nigeria**

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	30	13.6	13.6	13.6
Agree	25	11.4	11.4	25.0
Undecided	5	2.3	2.3	27.3
Disagree	98	44.5	44.5	71.8
Strongly Disagree	62	28.2	28.2	100.0
Total	220	100.0	100.0	

**Source: Field Survey, 2016**

Table 9 examines whether there is sufficient funding of agricultural policies in Nigeria. Presentation from the table above shows that 30 respondents or 13.6% strongly agreed while 25 respondents or 11.4% agreed that there is sufficient funding of agricultural policies in Nigeria. On the other hand, 5 respondent or 2.3% indicated undecided, 98 respondents or 44.4% disagreed while 62 respondents or 28.2% strongly disagreed to the question. Going by this observation, and considering our literature review on the sub-heading "challenges of agricultural policies in Nigeria" it was observed that poor funding is a one of the major challenges facing the implementation of agricultural policies in Nigeria. Ikelegbe (1996) observed that a major problem in programme implementation is inadequate of resource to

effectively effectuate programmes. Often times, programmes resources commitments or promises do not come near what it takes to execute at the level of operation, delivery of goods and services and targets, anticipated or directed.

**Table 10: Respondents' Opinions On Whether Majority Of The Beneficiaries Of Agricultural Fiscal Policies Are The Farmers Or Those In The Agricultural Dominated Activities**

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	20	9.1	9.1	9.1
Agree	50	22.7	22.7	31.8
Undecided	5	2.3	2.3	34.1
Disagree	80	36.4	36.4	70.5
Strongly Disagree	65	29.5	29.5	100.0
Total	220	100.0	100.0	

**Source: Field Survey, 2016**

Table 10 assesses the respondents' opinions on whether majority of the beneficiaries of agricultural policies are the farmers or those in the agricultural dominated activities. From the table, 20 respondents' or 9.1% strongly agreed while 50 respondents' or 22.7% agreed. In another view, 80 respondents' or 36.4% disagreed while 65 respondents' or 29.5% strongly disagreed to the question. 5 respondents' or 2.7 answered undecided. Finding shown that majority of the respondents' were of the opinions that the beneficiaries of agricultural policies are the farmers or those in the agricultural dominated activities. Observation from the respondents' opinions showed that agricultural policies and programmes are designed to boost agricultural activities of the rural farmer, but usually during the implementation stage may deviate from the original policy guide. This means that the tendency of leakages of beneficiaries usually occurs to divert programme benefits to the wrong beneficiaries (people). Unintended beneficiaries tend to emerge from the politicization of implementation processes of agricultural policies and programmes by the implementing agencies. Politicians and other key stakeholders within and outside the implementing agencies disburse micro-credits to relations and friends.

**Table 11: Respondents' Opinions on Whether Agricultural Fiscal Policies Make Adequate Provisions For Favorable Marketing of Agricultural Produce Both At The Local And International Markets**

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	42	19.1	19.1	19.1
Agree	55	25.0	25.0	44.1
Disagree	60	27.3	27.3	71.4
Strongly Disagree	63	28.6	28.6	100.0
Total	220	100.0	100.0	



**Source: Field Survey, 2016**

Table 11 shows the respondents’ assessment on whether agricultural policies make adequate provisions for favorable marketing of agricultural produce both at local and international markets. Presentation in the table shows that 42 respondents’ or 19.1 strongly agreed while 55 respondents’ or 25.0% agreed that agricultural policies make adequate provisions for favorable marketing of agricultural produce both at the local and international markets.

On the other hand, 60 respondents’ or 27.3% disagreed while 63 respondents’ or 28.6% strongly disagreed that agricultural policies make adequate provisions for favourable marketing of agricultural produce both at the local and international markets. In verifying the respondents’ opinions from the point of view of some scholars in our literature review, Abolagba et al (2010), Abiodun and Olakojo (2010), among others showed that unfavourable marketing of agricultural products affect farmers as well as the contribution of agriculture to Nigerian economy. Common sense observation shows that most farmers live in the rural communities where there is poor network of road to transport their agricultural products to places they could be sold. Sometimes, due to poor network of road, agricultural produce may perish before getting to urban areas or any other destination where their demands may be needed. Market prices of the agricultural products sometimes fall below the cost of farming by the farmers thereby discouraging many to take interest in agriculture as their occupation. All these imperfections affect commodity articulation for export of agricultural produce. Nigeria’s export of agricultural produce has continually been in the decline thereby affecting international marketing of Nigeria’s agricultural products.

**4.2 Test of Hypotheses**

The hypotheses earlier formulated are approached by the use of t-test statistical tool. Using the student *t*-test (*t*-statistic), we say that a variable is statistically significant if *t*\* (*t*-calculated) is greater than the tabulated value of ±1.96 under 95% (or 5%) confidence levels and it is statistically insignificant if the *t*\* is less than the tabulated value of ±1.96 under 95% (or 5%) confidence levels. That is;

**H<sub>0</sub>:**  $\beta_0 = 0$  (Null hypothesis)

**H<sub>1</sub>:**  $\beta_1 \neq 0$  (Alternative hypothesis)

**4.2.1 Hypothesis One: H01: Government Agricultural Fiscal Policies have not significantly improved Nigerian Agricultural Sector.**

**Table 12:** T-Test Result on whether Government Agricultural Fiscal Policies have significantly improved Nigerian Agricultural Sector.

Test Value = 0					
t-value	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
				Lower	Upper
1.368	219	.000	2.18182	2.0003	2.3633

**Source: SPSS 17.0**

The calculated t-value in table 12 is 1.36 and the tabulated value is 1.96 under 95% confidence levels. Since the calculated is less than the tabulated value ( $1.36 < 1.96$ ), we therefore, accept the null hypothesis ( $H_{01}$ ). We conclude that Government Agricultural Fiscal Policies have not significantly improved Nigerian Agricultural Sector.

**4.2.2 Hypothesis Two:  $H_{02}$ : *The beneficiaries of government agricultural fiscal policies in Nigeria are not the actual targeted population group in the agricultural dominated activities.***

**Table 13:** T-Test Result on whether the beneficiaries of government agricultural policies in Nigeria are the actual targeted population group in the agricultural dominated activities

Test Value = 0					
t-value	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
				Lower	Upper
1.692	219	0.5644	3.54545	3.3649	3.7260

**Source: SPSS 17.0**

From the t- test result in table 13, the calculated t-value is 1.69 and the tabulated value is 1.96. the t-value therefore falls in the acceptance region and hence, we may accept the null hypothesis( $H_{02}$ ). The conclusion is thatthe beneficiaries of government agricultural fiscal policies in Nigeria are not the actual targeted population group in the agricultural dominated activities.

**4.2.3 Hypothesis Three:  $H_{03}$ : *Government funding of Agricultural policies and programs has not been sufficient***

**Table 14:** T-Test Result on whether Government funding of Agricultural policies and programs has been sufficient

Test Value = 0					
t-value	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
				Lower	Upper
1.365	219	0.2311	1.56875	1.3421	1.4262

**Source: SPSS 17.0**

The calculated t-value in table 14 is 1.36 and the tabulated value is 1.96 under 95% confidence levels. Since the calculated t-value is less than the tabulated value ( $1.36 < 1.96$ ), we therefore, accept the null hypothesis ( $H_{03}$ ). We conclude that Government funding of Agricultural policies and programs has not been sufficient

### 4.3 Discussion of findings

The findings from the study revealed that government Agricultural Fiscal Policies have not significantly improved Nigerian Agricultural Sector. The survey conducted further revealed that Nigeria has good agricultural development policies and programmes when compared with some other countries but the respondents however, disclosed these agricultural policies and programmes sometimes fail to achieve the desired results. Public spending on agriculture in Nigeria is not fully captured in official budget records. So-called “off-budget” expenditures overlap extensively with donor funds, because a substantial amount of external aid is typically not captured in government accounts.

The beneficiaries of government agricultural fiscal policies in Nigeria are not the actual targeted population group in the agricultural dominated activities. Going by this observation, and considering our literature review, it was observed that poor funding is a one of the major challenges facing the implementation of agricultural policies in Nigeria. Ikelegbe (1996) observed that a major problem in programme implementation is inadequate of resource to effectively effectuate programmes. Often times, programmes resources commitments or promises do not come near what it takes to execute at the level of operation, delivery of goods and services and targets, anticipated or directed. Findings from Food Policy Research Institute (2008) on public spending on agriculture in Nigeria (2001-2005) revealed that public spending on agriculture was exceedingly low. Less than 2 percent of total Federal expenditure was allotted to agriculture during 2001 to 2005, far lower than spending in other key sectors such as education, health, and water. This spending contrasts dramatically with the sector’s importance in the Nigerian economy and the policy emphasis on diversifying away from oil, and falls well below the 10 percent goal set by African leaders in the 2003 Maputo agreement.

Government funding of Agricultural policies and programs was found not to have been sufficient at improving agricultural produce. Observation from the respondents’ opinions showed that agricultural policies and programmes are designed to boost agricultural activities of the rural farmer, but usually during the implementation stage may deviate from the original policy guide. This means that the tendency of leakages of beneficiaries usually occurs to divert programme benefits to the wrong beneficiaries (people). Unintended beneficiaries tend to emerge from the politicization of implementation processes of agricultural policies and programmes by the implementing agencies. Politicians and other key stakeholders within and outside the implementing agencies disburse subsidies to their relations and friends.

## **V. Conclusion and Recommendations**

The Nigerian government has over the years formulated good agricultural fiscal policies meant to encourage food production and other economic benefits to enhance economic development but such fiscal policies have been found inefficient and ineffective since the intended results were not realized. From the research findings, some evidence were established to show that the formulation of the agricultural policies often does not take critical analysis of the social, economic, physical/environmental and political impact on the target intended beneficiaries. On the other hand, the implementation of agricultural policies is characterized with implementation problems one of which is implementation leakages. Equally, findings showed that poor funding to agricultural policies and programmes affect the

impact of these policies and programmes on Nigerian economy. Poor funding and government expenditures on agriculture affect the implementation of agricultural policies in so many ways.

Therefore, there is the need to correct the existing structural distortions in the Nigerian agricultural sector and put the economy on the path of sustainable growth. The study recommends that

1. It is imperative for the country to develop its agricultural sector through sufficient capital and recurrent expenditure spending on the sector.
2. It emphasizes the need to enlighten farmers, improve and provide infrastructures, accord a priority to the sector in budget allocation, enthrone adequate and appropriate extension services, among other measures laid by the government.
3. Formulation stage of public policies involves identification of problems. Therefore, formulation of agricultural policies should endeavour first to identify the problems of Nigeria's agricultural sector in areas of social, economic, environmental/physical and political problems that affect the outcome of agricultural policies in Nigeria.
4. Also adequate assessment on social economic and environmental impact analysis of agricultural policies should be carried out before formulation. This will help in providing pragmatic solutions to the problems of agricultural sector.

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## DOSE EXCHANGE RATE POLICY MATTER FOR ECONOMIC GROWTH? EVIDENCE FROM THE ECONOMIC COMMUNITY OF WEST AFRICAN STATES

ABDUL-MALIQ Yekeen

Banking and Finance Department University of Abuja. Tel. 08037770262, e-mail:

[abdulmaliqyekeen@gmail.com](mailto:abdulmaliqyekeen@gmail.com)

(Corresponding Author)

&

MAGAJI, Sule

Economics Department, University of Abuja. Tel. 08036799700, e-mail:

[dr\\_s.magaji@yahoo.com](mailto:dr_s.magaji@yahoo.com)

### Abstract

*This paper investigates the relative performance of Anglo-phone ECOWAS countries' choices of flexible exchange rate policies as against the non Anglo-phone ECOWAS currency board approach. Based on a 15 year pooled regression, results show that while gross capital formation and educational attainment (secondary School) were growth inducing in both Anglo-phone and Non Anglo-phone blocs, exchange policy/regime as well as economic openness were not. This findings are in tandem with the understanding that while flexible exchange rate policy may be better for developing economies, it ill-advice in the face of poor macro-economic policy credibility. The paper therefore recommends that in the event of the proposed West African Single Currency; the Non-Anglo-Phone currency board arrangement be preferred.*

**Key Words:** Exchange Rate, ECOWAS, Currency Board, Impossible Trinity, Regime, Growth, Openness.

### 1.0 Introduction

Since the demise of the Gold Standard, which is regarded as the most credible of exchange rates regimes ever, (Dwivendi, 1990; Miller & Van-Hoose, 1993; Sodersten & Reed, 1994), the world has experimented with several exchange rate policies. Form the Breton wood system of fixed exchange rate (1946-1971), to the Smithsonian agreement (1973-1985), to the Plaza accord (1985-1987) and the Louvre accord of 1987. It does not appear that the world has found any of these policies satisfactory.

Many researchers- Aaron, Elbadawi & Khan (1997) Ahmadu & Zarma (1997) Drine & Rault (2003) among others-have asserted the importance of exchange rate as a macroeconomic variable. Many researchers on the other hand, have also confirmed the difficulty in determining and sustaining an appropriate exchange rate policy. For instance, Quirk (1994) submits that unrealistic exchange rate cannot be sustained even for short periods. Frenkel (1999), Barrdo (2004) have also shown that no one exchange rate policy is best for all nations at all times. The doctrine of impossible trinity (Azienman (2011) operates to frustrate the objective of internal and external balance via rigid exchange rate polices.

What all these suggest is perhaps that countries can or should accept exchange rate as a policy outcome rather than an input variable. That is; given other policy instruments, such as output growth, adequate domestic capital formation, free flow of capital (openness), credible wages and industrial policies and the likes: resulting exchange rate at anytime  $t$  should be accepted as given. This is essentially what free float entails, although it has become common knowledge that no country actually operates a freely floating exchange rate to the letter. And even then, that fixed exchange rate on the other hand has not necessarily outperformed the floating exchange rate regime in many circumstances.

The question therefore is, does exchange rate policy/regime actually matter for economic growth? That is, do economies that operate a particular exchange rate policy perform better with respect to internal and external balances?, If this were so, Frenkel (1999) and Bardo (2004) would have been falsified and the doctrine of impossible trinity nullified. But empirical evidence suggest otherwise.

The objective of this paper is to use a unique exchange rate habitat to investigate the extent to which exchange rate policy matters in the economic growth process.

The natural habitat for this quasi-experimental research is the *ECOWAS* sub-region. By accident of history, the fifteen *ECOWAS* countries are divided into two contrasting exchange rate policy blocs. The five Anglo-phone *ECOWAS* countries: Ghana, Gambia Nigeria, Liberia and Sierra-Leone have exercised monetary autonomy with respect to interest as well as exchange rate and related issues since independence. The ten non-Anglophone countries, on the other hand, have pursued a somewhat French-franc anchored exchange rate policy before independence and since there-after. This arrangement was transferred to the European Monetary Union (EMU) when France in conjunction with the other EU nations adopted the *euro* in January 1999. (Lamine, 2006)

The *ECOWAS* region, (unique in this sense of natural contrasting clusters), thus form a most suitable candidate for this investigation. It should be noted however that while the Franco-phone countries are seen to have religiously upheld this otherwise fixed exchange rate-akin to dollarization via French franc and later via the euro, the Anglo-phone countries have vacillated between hard peg, free float and mostly managed float in their economic management history. Not with standing this, with appropriate estimation techniques, we can smoothen out areas of temporary digressions and uncover the underlying effects of these policy postures on economic performance of their respective blocs.

## 2.0 LITERATURE REVIEW

### 2.1 Conceptual Review

The problem with exchange rate management can be said to begin with the concept of exchange rate. The general notion of exchange rate is that it is “the rate at which one unit of a nation’s currency exchanges for another country’s currency”. ( Oyejide, 1985). Baye & Jansen, (2006) describe exchange rate as “the number of units of one country’s currency that must be given up to buy a unit of another country’s currency”. Obadan (2006) goes further to



explain that the nominal exchange rate (NER) (which is what is actually defined above) is a monetary concept that measures the relative price of two moneys or currencies, for instance, Naira in exchange for a unit of U.S. dollar and vice versa. On the other hand, real exchange rate (RER) says Obadan (2006), is a real concept that measures the relative price of two goods-traceable goods ( goods and services produced and consumed locally ).

Odusola (2006) says that real exchange rate can be defined from both external and internal perspectives. The external RER, he says, is the nominal exchange rate adjusted for price level (inflation) difference between countries. On the other hand, internal RER measures the relative prices of two broad categories of goods; tradable and non-tradable goods. Thus, the internal RER is the ratio of domestic price of traceable to non-tradable goods within a given country

As if the above are not yet complex and confusing enough, there are other concepts such as bi-lateral RER (BRER) and multilateral RER (M RER). Bilateral RER is the real exchange rates between two countries while the (MRER) is a ratio of a country's currency to a unit of a weighted average of a currency basket.

Odusola (2006) complicates matters even further with the concept of fundamental equilibrium exchange rate (FEER). Obaseki (1986) defines FEER as a given level of exchange rate that enables an economy to achieve the twin objectives of internal and external balance without the imposition of trade and exchange control.

According to Harberger (2003, P. 3), the 'real exchange rate (RER) of a country is an equilibrium real price, and does not depend on the foreign currency that one uses as a numeraire.

The above suggests that attempt at managing exchange rate will be futile unless it achieves GDP growth as well as moderate inflationary pressure.

While theoretical economists might not have any problem with looking for what is not lost-real exchange rate- econometricians, like Davidson (1985) say exchange rate is recognized as a particularly tricky subject for modeling and prediction.

To relate this to Professor Sam Aluko's opinion that 'economics is common sense made difficult', it might be better to appreciate and tackle the difficult aspect(s) of Economics rather than succumb to the temptation and sensation of the common sense of it. This has remained a tricky issue in theoretical versus applied Economics for a long time.

Beyond all these are still issues of real effective exchanged rate (REER) whose definition is more or less Obaseki's equilibrium exchange rate except that the computation of the two is slightly different.

Much greater conceptual complications arise due to the nature of foreign currency itself. First and foremost, while exchange rate issue deals with the pricing of a commodity-currency- the commodity itself has a very complex and complicated 'personality'. A foreign currency is a

product that has its demand and supply mechanism not quite the same as the conventional demand/supply interplay, which is supposed to determine the appropriate price: that is, the nominal exchange rate in the first place.

Unlike other commodities, foreign currencies are money and therefore behave like money and perform the role of money. Monies have no primary demand; only derived demand. That is; no one needs currency for its sake but to procure other commodities, investment, instruments, deposits accounts, etc. inclusive. The implication of this is that, as a medium of exchange, temporary abode of purchasing power (store of value) and as a standard of deferred payment, (Osborne, 1984; Miller and Van-Hoose, 1993), the more unstable the value of a country's currency is relative to other currencies; irrespective of other fundamentals, the lower the demand that currency. To put it more directly, when a currency fails to or is suspected of not being able to perform its other functions, apart from as a medium of exchange, the demand for and therefore, the price of the currency must nose-dive. This is so, because, the demand for foreign currencies for speculative and precautionary purposes often outweigh the current demand-for transactionary purposes.

At the foreign exchange market, the concepts of spot versus forward prices are jointly determined. Thus, while the *de jure* exchange rate policy may appeal to policy makers, the real transaction in the market is driven by the *de-facto* fundamentals and expectations about the sustainability of the fundamentals *per se* on the one hand and relative to all other countries fundamentals, on the other.

The issues of official and parallel (black) markets also exist to confound issues. While Akpan (2000) posits that black market is a rational behaviour, most policy makers, especially in emerging economies, insist that it is otherwise, hence their assiduous effort (which has always been in vain) to kill the black market.

With such a conceptual muddle, is it not only reasonable to reason that exchange rates should be accepted as policy results, rather than policy instrument?

## 2.2 Theoretical Review

The nexus between exchange rate (real exchange rate) and economic growth can be regarded as farfetched. According to Eichengreen (2007), real exchange rate has not been at the center of the analysis of economic growth. Not in the first generation of neoclassical growth models pioneered by Robert Solow as in (Solow 1957) nor in the Rostow's model: Rostow (1960).

This is neither surprising nor unexpected since the issue of exchange rate, and therefore, exchange rate volatility is a post-Smithsonian phenomenon. According to Eichengreen (2007, P. 4), it is the east Asian countries-Japan, Hong Kong, Singapore, South Korea and Taiwan export-led development experience that gave much impetus to the idea that "minimizing exchange rate volatility is an essential part of growth recipe". According to him, even that idea is disputed.

While many research works have found real exchange/real exchange volatility as having growth inducing impact, many others have reported contrary results. In the former class include Islam and Biswas, 2013; Adeniran *et al* 2014, to mention only a few. In the later class are Attah-Obeng *et al*, 2013; Khoner *et al* 2012; Akinbobla 2012 among other. Stotsky *et al* (2012) and some other researchers, in a different shade, report a sort of ambivalent findings.

According to Eichengreen, the experience of the East-Asian countries can be explained by way of using real exchange rate mechanism to provide incentive to shift resources into manufacturing to provide a boost for higher national productivity. These helped to improve domestic savings, finance higher levels of investment and engender faster transfer of technology.

Harberger (2003, P.2) too seems to argue that while the well-know Balassa-Samuelson effect seem to be a good platform to link RER to growth, there is the corresponding inability to identify a logical cause and effect relation between RER and growth implying still that the RER-growth nexus is farfetched.

Thus, Harberger insists that while there is no controversy about the basic structure of real exchange rate economics, there remains the “inability to trace a logical path from cause to effect”, as it relates to RER-growth.

We tend to agree with Harberger and Eichengreen, that the theoretical foundation of real exchange rate economics be not contested. We are equally, in this paper, not interested in the pros and cons of the different exchange rate regimes, but simply to weigh empirical evidence in support or against the RER-growth nexus with facts and figures from the *ECOWAS* countries experiences, especially as it presents uniqueness in its composition and juxtaposition.

It should however be noted; as Rodrik (2007, P.1) puts it, avoiding over valuation of the currency is one of the most robust imperatives with economic growth around the world. According to him, economists have long known that poorly managed exchange rates can be disastrous for economic growth. This, in our opinion, does not seem to mean that RER or exchange rate policy or regimes are in themselves, growth inducing.

While there are actually large bodies of empirical evidence, they essentially seem to outweigh each other. It is therefore proper to, as we intend to do in this paper, look at the matter from an essentially different clime. One in which everything other than exchange rate policy should be equal. This type of natural contrasting clusters has never been a focus in the study of real exchange rate pass-through studies, at least, not any to our knowledge.

## **2.3 EMPIRICAL REVIEW**

### **2.3.1 Non-ECOWAS Experience**

Studies on the impact of exchange rate policies/regimes and economic growth are many; with basic underlying objective but some with somewhat slight alignment towards narrower or more specific objectives such as on export import, financial crises, balance of payment, inflation etc. Reviews of just a few in three classes of economies are undertaken here. (i) Non-ECOWAS (ii) Anglo-phone ECOWAS and (iii) Non-Anglo phone one ECOWAS.

Eichengreen (2007) investigated the issue of reach exchange rate and economic growth. The research reported that it was in the East Asian export-led model that the real exchange rate has much of demonstrable impact on growth. Never the less, the research noted that real exchange rate matters for growth even if only to minimize volatility, which may contribute to reducing confidence in the currency and the economy at large. The paper noted that the idea that minimizing exchange rate volatility is an essential point even if as a supporting framework. Thus, the paper went ahead to conclude that, it appears that ‘keeping real exchange rate at competitive levels and avoiding excessive volatility facilitates efforts to capitalize on the fundamentals’. (P.23), and this, according to the researcher, can be important.

Khonder, Bidisha and Razzaque (2012) also concluded that while the long-run expansionary effect of real depreciation may appeal for considering the role of exchange rate pass-through to consumer prices would surely constrain such an option (p.1). this view does not differ significantly from De-Vitas and Khine (2011) nor Carlvo & Mishkin (2003)

Stotsky, Ghazanchyan, Adedeji & Maehle (2012) based on 7 countries of Easter-Africa report that while investment and exchange rate were significant determinates of growth, exchange regime or liberalization were not. On the whole, they concluded that, exchange rate pass-through was limited.

Islam & Biswas (2013) on a more favorable note, posit that Bangladesh’s experience with floating exchange rate; compared to its neighbours’ is that floating exchange rate may be better. But more importantly, the paper opines that maintaining confidence in a currency, securing currency strength and ensuring its full convertibility are all that governments need to do.

The work of Frenkel, Bergten & Mussa (2014) has a funny and sarcastic tone when the paper observes that the ‘typical resident of each of the three worlds bases his or her actions more on what seems to be ‘in’ at the moment rather than what makes the most sense. This, they described as the bandwagon paradigm. The paper reached this rather but yet not so funny conclusion after painstakingly showing that when it comes to the choice of exchange rate, there are (a) contending economic theories, (b) contending views about what is desirable and (c) conflicting views among different interest groups – manufacturers, agriculturists, labour and what not.

If there is this degree of discordance, even in the advanced/developed economies when it comes to exchange rate management; and Frenkel (1999) arrived that there is no one best exchange rate policy for every country and at all times; then why not just accept exchange rate policy as determined rather than as a determinat.

Agu's (2002) work on Nigeria revealed that exchange rate distortion persist in the Nigeria situation almost since the structural Adjustment program (SAP) in 1986

Agu's recommended policy options didn't seem to have worked, if it was part of what informed exchange rate policies in Nigeria in the following years. Thus, Mordi (2006) still reported enormous challenges in the management of exchange rate volatility in Nigeria.

As at 2007, following the re-denomination exercise in Ghana, Nigeria toyed with the idea of re-denomination. Stabilization of Nigeria exchange rate (even the nominal level) remains elusive confirming the fact that flexible exchange rate policy has not been successful. The Ghanaian re-domination; successful as it appears is not without its challenges. See Amoak O-Agye Vnan & Mintal 2014.

Following Mordi (2006) as reviewed by Abdul-Maliq (2012), between 1986 and 2006; when Nigeria was supposed to pursue market determined (flexible), exchange rate, about 8 different exchange frame works were implemented. Needless to say, that while the overall aim of exchange policy may have remained the same during this period; a lot of unexplained behind the scene objectives or intentions could be discerned a priori or with benefit of hindsight.

The interlude of a return to a hard-fix exchange rate policy-1995-1998, (see Abdul-Maliq, 2012, P.66) has not been successfully rationalized by policy makers nor by researchers. The controversy about the appropriateness of the Nigerian exchange rate policy resulting into the removal by JP Morgan of Nigeria from its index list in 2015 confirms that Nigeria is yet to find an appropriate exchange rate management framework.

The work of Akinbobola (2012) reported that in the long-run money supply and exchange rate have inverse effects on inflationary pressure.

The study by Adeniran, Yusuf & Adeyemi (2014) also reported that exchange rate had a positive but not significant impact on Nigeria's economic growth.

Alagidede & Ibrahim (2016) on the Ghanaian economy with respect to exchange rate volatility reported that while shocks to exchange rate were mean reverting, misalignment tended to be sluggish. These, according to them have painful consequences in the short-cut. The paper also reported that while about three quarters of shocks to exchange rate were self-driven, the remaining one quarter was driven by government expenditure and money supply growth, terms of trade and output

With respect to Liberia, Frasmus, Leichter & Menkulasi (2009) reveal that having practiced dual currency policy since 1945, the U. S. dollar seem to account for about 90 percent of its monetary stock. Thus, Liberia is considered one of the most dollarized countries. The volatility of the Liberian dollar vis-à-vis the U. S. dollar may be easily camouflaged. There is however no evidence of serious danger of this, going by the Central Bank of Liberia (CBL) (2013).

While the work of Frasmos *et al* (2009) strongly focused on possible discontinuance of the dual currency legacy; the paper cautioned that there could be much more to it than just a policy change. For instance; among the needful to be done before this discontinuance, according to Frasmos *et al*, (P. 18) include modernization of prudential regulations, official removal of the legal tender status for the U.S. dollar and the determination of the role of the U S dollar thereafter, as they put it, because, forcing agents to use a currency in which they don't yet have confidence could lead to the risk of disintermediation or capital flight. The question one should ask therefore is how bad is the near fully dollarized Liberian economy compared to what is being passed.

Furthermore central Bank of Liberia (2013) reported that despite the depreciation of the Librarian dollar in 2013, the economy grew at an estimated 8.19 per cent and inflation remained at single digit throughout the year; averaging 7.6 per cent.

### **2.3.2 The Non Anglo-Phone ECOWAS Experience**

Massan & pathilo (2001) and Lamine (2006) reveal that eight out of the ten non-Anglophone ECOWAS countries Benin, Burkina-Faso, Guirica-Bisam, Code d'ivore, Mali, Niger, Senegal and Togo currently use what is more or less a single West African French currency: the currency of French Africa (CFA). Lamine further reveals that after independence, Mali and Mauritania- former French colonies opted out of this currency board arrangement Guinea-Bissau, a former Portuguese colony joined the currency in 1997.

From the point of view of monetary autonomy, a currency board arrangement leaves little or no room for much of willful intervention in monetary and exchange rate policies. A fix exchange rate policy does not however preclude such a currency's exchange rate from varying from time to time, It means however that such fluctuations are usually accomplished via revaluation rather than day-to-day market activities. This again does not mean that such a currency doesn't face a day-to-day swing tendencies but that such tendencies are restricted in the short and even medium-term to the market in tradables and even at that; to the very tail end of the trade chain; with little or no sort-term pass-through to economic fundamentals.

## **3.0 Methodology**

This essentially quasi-experimental research work uses a growth model of the Solow-Swan nature to investigate the relationship between the independent variables and growth.

### **3.1 Estimation Technique:**

The estimation technique is the traditional pooled regression panel estimation techniques. In addition, fixed and random effects estimation was carried out with the Statistical software - STATA: 13.



The basic framework for panel data regression takes the form:

$$Y_{it} = \beta X'_{it} + \alpha Z'_i + \varepsilon_{it} \dots\dots\dots(1)$$

In equation 1 above, the heterogeneity or individual effect is  $Z'_i$  which may represent a constant term and a set of observable and unobservable variables (Individual effect). When the individual effect  $Z'_i$  contains only a constant term, OLS estimation provides a consistent and efficient estimates of the underlying parameters (Kyereboah-Coleman, 2007); but if  $Z'_i$  is un-observable and correlated with  $X'_{it}$ , then emerges the need to use other estimation method because OLS will give rise to biased and inconsistent estimates.

Further, endogeneity problems arise when the explanatory variables are correlated with the disturbance term  $\varepsilon_{it}$  (Mayston, 2002; Nakamura and Nakamura, 1981; Hausman and Taylor, 1981). In order to circumvent these problems, panel estimation techniques of fixed and random effects will be adopted in this study, in addition to the traditional pooled regression estimation. The random effect estimator is used if the individual specific component is assumed to be random with respect to the explanatory variables. The fixed effects estimator is used if the individual specific component is not independent with respect to the explanatory variables. Decisions will be made between the fixed and random effect models using the Hausman specification test.

### 3.2 Model Specification

Following the theoretical model that says economic growth depends on capital and labour, we specify the model in a functional form to capture this relationship. This is shown below;

$$GDP = f(K, L) \quad (2)$$

- Where
- GDP = Gross Domestic Product
- K = Capital
- L = Labour

In order to capture the effect of exchange rate manage system, we proxy exchange rate management system with a dummy which assumes 1, when a country operates a fixed exchange rate and zero otherwise<sup>11</sup>. Based on this, we re-specify equation 2;

$$GDP = f(K, L, Open, EXC)$$

The explicit models for Pooled, Fixed and Random effects models are presented below;

#### 3.2.1 Pooled Panel Regression Models

The starting model is the pooled panel model where it is assumed that any heterogeneity across countries has been averaged out. Thus the pooled estimation is given as:

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<sup>11</sup> The same approached is used by Torres (nd)..



$$\ln gdp_i = \beta_0 + \beta_1 \ln gcf + \beta_2 \ln sch_i + \beta_3 open_i + \beta_4 exc_i + \varepsilon_i \quad (3)$$

Where

Lngdp=natural log of real GDP

Lnsec= natural log of secondary school enrollment

Lngcf= natural log of gross capital formation

Open= trade openness

Exc = exchange rate regime dummy, which takes 1 if country operates a flexible exchange rate and 0 otherwise. The subscript  $i$  represents the number of countries (15 ECOWAS countries), while subscript  $t$  represents the year,  $t = 1991, \dots, 2015$ .

### 3.2.2 Fixed Panel Regression Model

The fixed effect model assumes that individual heterogeneity is captured by the intercept term. This means every individual is assigned its intercept  $\alpha_i$ , while the slope coefficients are the same, and the heterogeneity is associated with the regressors on the right hand side. In the model also we assign a dummy to every individual.

$$\ln gpd_{it} = \beta_0 + \beta_1 \ln gcf_{it} + \beta_2 \ln sch_{it} + \beta_3 open_{it} + \beta_4 exc_{it} + \sum_{i=1}^{84} \alpha_i idum +$$

$\varepsilon_{it}$

(4)

### 3.2.3 Random Effect Model

The random effect model assumes that the individual heterogeneity is uncorrelated with (or, more strongly, statistically independent of) all the observed variables. Going by this assumption we specify the following model;

$$\ln gpd_{it} = \beta_0 + \beta_1 \ln gcf_{it} + \beta_2 \ln sch_{it} + \beta_3 open_{it} + \beta_4 exc_{it} + V_{it} \quad (5)$$

Where  $V_{it} = \alpha_i + \varepsilon_{it}$

## 4.0 PRESENTATION AND DISCUSSIONS OF RESULTS

In this section we focus on the presentation and discussion of results and this is divided into two major parts. The first part comprises the descriptive analysis and the second is the regression analysis and discussions of the results.

### 4.1 Descriptive Statistics

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12 Most of the recent data (2015) were extrapolated using a five years linear trend method.

With data sourced from World Bank data base; World Economic Indicators 2015, and analyzed as explained above, this section presents descriptive statistics.

#### 4.1.1 Presentation of Descriptive Statistics

From the Table 1A. we observe that RGDP ranges from US\$104m to US\$201,000m with a mean of US\$11400m and deviation of US\$28900 m. Investment proxied by gross fixed capital formation (GFCF) has a minimum value of US\$1.96m and a maximum of US\$107,000m with an average value of US\$2780m and a standard deviation of US\$10500m. Labour (number of secondary school pupil) ranges from 0.00192m to 12.8m. The mean and deviation are 0.902m and 2.128m respectively. Trade openness rages from 0.19 to 1.79 with an average value of 0.66 and a standard deviation of 0.25. Exchange rate hovers around US\$0.04 to US\$9126.89 with an average value of US\$684.43 and a standard deviation of US\$1217.72.

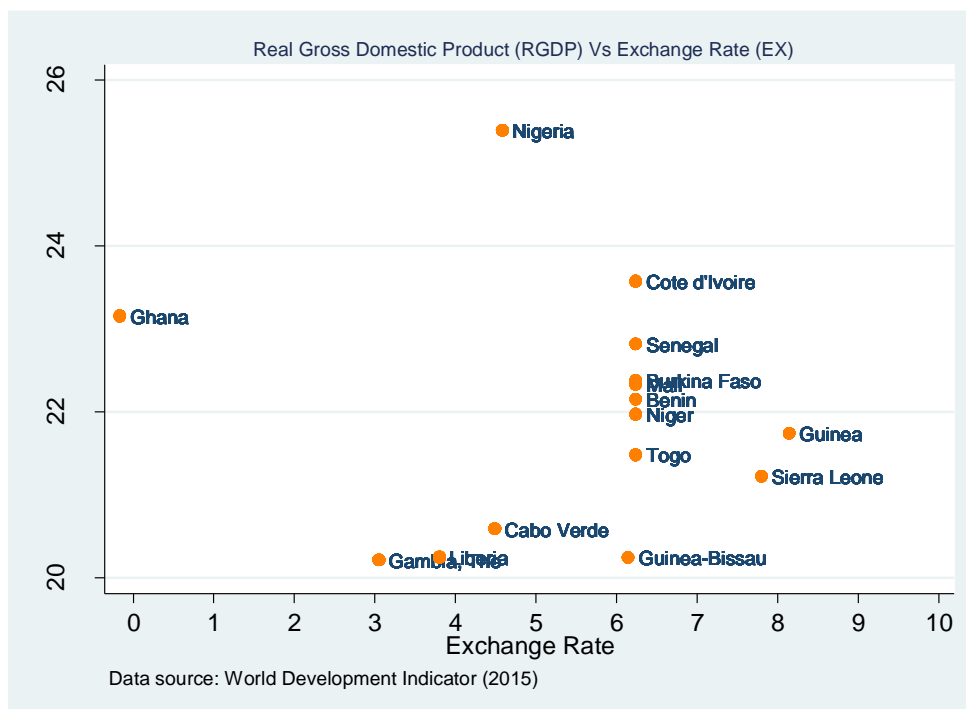
Table 1: Table Showing the Descriptive Statistics of Variables

Variable	Min	Max	Mean	Std. Dev.
RGDP (US'M)	104	201000	11400	28900
GFCF (US'M)	1.96043	107000	2780	10500
EDU (M)	0.00192	12.8	0.90268	2.12853
Open	0.19	1.79	0.66	0.25
EX (USD)	0.04	9126.89	684.43	1217.72

Source: Author's computation (2016)

#### Scatter plot showing the relationship between GDP and Exchange rate in ECOWAS countries.

Figure 1 presents a scatter plot showing the relationship between the log of exchange rate and economic growth in *ECOWAS* countries. From the chart, most of the Anglophone countries have high level of GDP and moderate amount of exchange rate. It is evident from the figure that some of the Anglophone countries differs in terms of their exchange rate, while the non-Anglophone countries are clustered around an average fixed exchange rate.



## 4.2 Estimation Results

In this section, we present the result of the empirical analysis of the effects of exchange rate policy (both fixed and flexible) on economic growth. In achieving this, the study considers all the 15 *ECOWAS* countries from 1991 to 2015. Table 2 presents the static panel data analysis, which shows the effect of exchange rate policy on economic growth.

As shown in the table, column 1 contains the Pooled regression estimates, while column 2 and 3 show the Fixed and Random regression estimates. The selection of the best model between fixed effect and random effect is based Hausman test results. The Hausman test statistics value of 61.06 ( $p < 0.01$ ), fails to accept the null hypothesis that the country specific effects are random, thus we accept the fixed effect estimate and conclude that country specific effect is fixed.

The R square value of 0.7473 implies that 75% of total variability in GDP has been explained by the independent variables. F-statistic value is 240.26 which is significant at 1% level. This shows the joint contributions of the variables in the model.

Generally, the result shows that gross capita formation (GCF), labour (SEC) and exchange rate policy<sup>13</sup> (EXC) have a significant impact on economic growth. In particular, there exist a positive and significant relationship between economic growth and labour at 1% level. This result is in line with previous findings on developed and developing economies and it is in tandem with our a priori expectation. The positive relationship suggests that *ECOWAS* countries will grow by 0.9% given a percentage increase in number of secondary school pupils. Conversely, exchange rate regime is negatively associated with economic growth.

<sup>13</sup> The study uses a dummy variable which assumes the value 1 if a country adopts flexible exchange rate and 0 otherwise

Precisely, this result shows that countries that adopt flexible exchange rate will have lower growth rate compare to countries that adopt fixed exchange rate. This is plausible since investors are always uncertain about their returns on investment in a flexible exchange rate regime. This may reduce the amount of both foreign and domestic investment and thus reduces economic growth,

Table 2: Effect of Exchange Rate Policy on Economic Growth - *ECOWAS*

Variable	Pooled	Fixed	Random
Lngcf	0.006**(0.003)	0.126***(0.023)	0.019*(0.011)
Lnsec	2.053***(0.047)	0.926***(0.042)	1.056***(0.042)
Open	-0.870***(0.124)	0.06(0.065)	0.046(0.071)
Exc	-0.044(0.057)	-0.039**(0.02)	-0.039*(0.022)
_cons	11.392***(0.275)	15.656***(0.248)	16.004***(0.257)
R-squared	0.8533	0.7473	0.7293
F(statistics (P-value)	493.09 (0.0000)	240.26 (0.0000)	855.69 (0.0000)
hausman test		61.06 (0.0000)	

Note: 1)\*, \*\*and \*\*\* indicate significance at 10%, 5% and 1% respectably.

lngcf and lnsec are natural log of gross capital formation and secondary school enrollment, open and exc represent trade openness and exchange rate regime (flexible or fixed)

Table 3 presents the effect of exchange rate policy on economic growth in Anglophone countries in *ECOWAS*. The result shows that the R square is 0.6060, suggesting that about 61% of variation in the GDP has been explained by the independent variables jointly. Also F-statistic is 41.53 and significant at 1% and it shows the joint contribution of the variables in the model. Gross capital formation, number of secondary school pupils and exchange rate regime are significant drivers of economic growth in Anglophone countries in *ECOWAS*. There exist a positive and statistically significant relationship between gross fixed capital formation and economic growth. This implies that 1 percent increase in gross capital formation will lead to 0.221 percent increase in economic growth. Further, Secondary school enrollment is positively linked to economic growth. The economy growth of Anglophone *ECOWAS* countries will increase by 0.781, give a 1 percent increase in secondary school enrollment. Considering the exchange rate regime, the study finds a negative, but statistically significant relationship between exchange rate regime and economic growth. The implication of the negative effect is that GDP will fall in most of the Anglophone economies if they continue to operate the flexible exchange rate.

Table 3: Effect of Exchange Rate Policy on Economic Growth – Anglophone

Variable	Pooled	Fixed	Random
Lngcf	0.007(0.005)	0.221***(0.043)	0.007(0.005)
Lnsec	2.307***(0.056)	0.781***(0.097)	2.307***(0.056)
Open	-0.696***(0.16)	0.071(0.106)	-0.696***(0.16)
Exc	-0.066(0.091)	-0.094*(0.048)	-0.066(0.091)
_cons	9.562***(0.355)	15.799***(0.536)	9.562***(0.355)

R-squared	0.9419	0.6060	0.4329
F(statistics (P-value))	453.87 (0.0000)	41.53 (0.0000)	1815.47 (0.0000)
hausman test		84.97 (0.0000)	

Note: 1)\*, \*\*and \*\*\* indicate significance at 10%, 5% and 1% respectively.

Ingcf and insec are natural log of gross capital formation and secondary school enrollment, open and exc represent trade openness and exchange rate regime (flexible or fixed)

Considering non-Anglophone *ECOWAS* countries, the relationship between exchange rate regime and economic growth is presented in table 4. From the Hausman's test result, we select and interpret the fixed effect regression estimate. R square value is 0.8801 and implies that 88% of total variability in GDP has been explained by the independent variables. F-statistic value is 390.97 ( $p < 0.01$ ). This indicates that the joint impact of all the independent variables in the model is statistically significant. Specifically, there exist a positive and significant relationship between GDP and SEC at 1% level. This implies that a one percent increase in school enrollment will lead to 1.075% increases in GDP. It is worth noting that there is no significant relationship between exchange rate regime and economic growth in non-Anglophone countries. This is plausible because most of the non-Anglophone countries operate a relatively fixed exchange rate regime.

Table 4: Effect of Exchange Rate Policy on Economic Growth – non-Anglophone

Variable	Pooled	Fixed	Random
Ingcf	0.003(0.003)	0.019(0.021)	0.002(0.012)
Insec	1.802***(0.07)	1.075***(0.038)	1.098***(0.036)
Open	-0.663***(0.16)	-0.094(0.084)	-0.108(0.085)
Exc	-0.009(0.061)	-0.015(0.016)	-0.015(0.016)
_cons	12.768***(0.384)	16.114***(0.228)	16.101***(0.234)
R-squared	0.7519	0.8801	0.8798
F(statistics (P-value))	168.24 (0.0000)	390.97 (0.0000)	1524.23 (0.0000)
hausman test		13.74 (0.0082)	

Note: 1)\*, \*\*and \*\*\* indicate significance at 10%, 5% and 1% respectively.

Ingcf and insec are natural log of gross capital formation and secondary school enrollment, open and exc represent trade openness and exchange rate regime (flexible or fixed)

## 5.0 Summary, Conclusion, and Policy Implication

This paper undertook a comparative analysis of exchange rate policies and regimes in the *ECOWAS* region with the overriding objective of determining whether the flexible exchange rate policy practiced by the Anglophone *ECOWAS* countries impacted economic growth better than the currency board arrangement of the non-Anglophone. The study which spanned 15 years, 2001-2015 focused on all the 15 *ECOWAS* countries.

Empirical analysis suggests that while gross capital formation (GCF) and educational attainment (secondary school) were growth inducing in both Anglo-phone and non-Anglophone countries, exchange rate policy (Exc) and economic openness (Open) were not. This suggests that, as has been commonly advocated by many researchers, a fixed exchange

rate policy is advised where a country's monetary and exchange rate policies have credibility and not where the reverse is the case.

The findings of this paper is in tandem with many research findings such as, (Eichengreen, 2007; Stotsky *et al*, 2012; Adeniran *et al*, 2014; Alagedede & Ibrahim, 2016).

Furthermore, this finding suggests that the warning by Obstfeld & Rogoff still remains valid. They had cautioned that 'policy authorities should avoid pinning their credibility on a variable [exchange rate] that can instantly and dramatically reflect shifting expectations about future events', ( Obstfeld and Rogoff, 1995, P. 5). Put the other way round; don't put your fate in a variable you cannot control.

A much more germane insinuation of this paper is that in the eventual adoption of the proposed West-African single currency, 'eco' and in line with the proposition of gopaldas (2014); the non-Anglophone CFA approach be preferred.

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**Appendix**

**Pooled Regression**

Source | SS df MS Number of obs = 344  
 -----+----- F( 4, 339) = 493.09  
 Model | 545.326427 4 136.331607 Prob > F = 0.0000  
 Residual | 93.7273465 339 .276481848 R-squared = 0.8533  
 -----+----- Adj R-squared = 0.8516  
 Total | 639.053774 343 1.86313054 Root MSE = .52582

-----+-----  
 lngdp | Coef. Std. Err. t P>|t| [95% Conf. Interval]  
 -----+-----  
 lngcf | .0061019 .0028247 2.16 0.031 .0005458 .011658  
 Insec | 2.052668 .0468078 43.85 0.000 1.960598 2.144739  
 open | -.8698329 .1238615 -7.02 0.000 -1.113467 -.626199  
 exc | -.0439403 .0570408 -0.77 0.442 -.1561389 .0682582  
 \_cons | 11.39215 .2747327 41.47 0.000 10.85175 11.93254

**Fixed Effect**

Fixed-effects (within) regression Number of obs = 344  
 Group variable: id Number of groups = 15

R-sq: within = 0.7473 Obs per group: min = 4  
 between = 0.0787 avg = 22.9  
 overall = 0.0897 max = 25

F(4,325) = 240.26  
 corr(u\_i, Xb) = -0.5769 Prob > F = 0.0000

-----+-----  
 lngdp | Coef. Std. Err. t P>|t| [95% Conf. Interval]  
 -----+-----  
 lngcf | .1257354 .0226193 5.56 0.000 .0812368 .1702341  
 Insec | .9264054 .0417154 22.21 0.000 .8443392 1.008472  
 open | .0603303 .0653885 0.92 0.357 -.0683078 .1889684  
 exc | -.039331 .0197776 -1.99 0.048 -.0782392 -.0004227  
 \_cons | 15.65561 .2478717 63.16 0.000 15.16797 16.14324  
 -----+-----  
 sigma\_u | 1.6273808  
 sigma\_e | .17488377  
 rho | .98858347 (fraction of variance due to u\_i)  
 -----+-----

F test that all  $u_i=0$ :  $F(14, 325) = 195.68$  Prob > F = 0.0000

. est store fe

**Random Effect**

Random-effects GLS regression Number of obs = 344  
 Group variable: id Number of groups = 15

R-sq: within = 0.7293 Obs per group: min = 4  
 between = 0.8491 avg = 22.9  
 overall = 0.7760 max = 25

Wald chi2(4) = 855.69  
 corr( $u_i$ , X) = 0 (assumed) Prob > chi2 = 0.0000  
 lngdp | Coef. Std. Err. z P>|z| [95% Conf. Interval]

---

lngcf	.0190112	.0107927	1.76	0.078	-.0021421	.0401646
lnsec	1.055748	.041818	25.25	0.000	.973786	1.137709
open	.0458618	.070898	0.65	0.518	-.0930956	.1848193
exc	-.0392954	.0216792	-1.81	0.070	-.0817859	.003195
_cons	16.00391	.256748	62.33	0.000	15.50069	16.50713
sigma_u	.42343345					
sigma_e	.17488377					
rho	.85427721 (fraction of variance due to $u_i$ )					

. est store re

**Hausman Test**

---- Coefficients ----  
 | (b) (B) (b-B) sqrt(diag(V\_b-V\_B))  
 | fe re Difference S.E.

---

lngcf	.1257354	.0190112	.1067242	.0223656
lnsec	.9264054	1.055748	-.1293423	.0186764
open	.0603303	.0458618	.0144685	.0112788
exc	-.039331	-.0392954	-.0000355	.0012233

---

b = consistent under Ho and Ha; obtained from xtreg  
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(4) = (b-B)'[(V\_b-V\_B)^(-1)](b-B)  
 = 61.06  
 Prob>chi2 = 0.0000

## Anglophone

### Pooled Regression

Source | SS df MS Number of obs = 117  
 -----+----- F( 4, 112) = 453.87  
 Model | 426.043937 4 106.510984 Prob > F = 0.0000  
 Residual | 26.2834449 112 .234673615 R-squared = 0.9419  
 -----+----- Adj R-squared = 0.9398  
 Total | 452.327382 116 3.89937398 Root MSE = .48443

-----+-----  
 lngdp | Coef. Std. Err. t P>|t| [95% Conf. Interval]  
 -----+-----  
 lngcf | .0072921 .0046427 1.57 0.119 -.0019068 .016491  
 lnsec | 2.306621 .0555908 41.49 0.000 2.196475 2.416767  
 open | -.6955676 .1595694 -4.36 0.000 -1.011734 -.3794012  
 exc | -.0656639 .0909753 -0.72 0.472 -.2459198 .1145919  
 \_cons | 9.561725 .3549583 26.94 0.000 8.858421 10.26503  
 -----+-----

### Fixed Effect

Fixed-effects (within) regression Number of obs = 117  
 Group variable: id Number of groups = 5

R-sq: within = 0.6060 Obs per group: min = 17  
 between = 0.0219 avg = 23.4  
 overall = 0.0134 max = 25

F(4,108) = 41.53  
 corr(u\_i, Xb) = -0.7079 Prob > F = 0.0000

-----+-----  
 lngdp | Coef. Std. Err. t P>|t| [95% Conf. Interval]  
 -----+-----  
 lngcf | .2214051 .0434861 5.09 0.000 .1352082 .307602  
 lnsec | .7808361 .0969637 8.05 0.000 .5886372 .973035  
 open | .0711044 .1061346 0.67 0.504 -.1392728 .2814817  
 exc | -.0943561 .047615 -1.98 0.050 -.1887373 .0000252  
 \_cons | 15.79948 .5356677 29.49 0.000 14.73769 16.86126  
 -----+-----  
 sigma\_u | 2.9733053  
 sigma\_e | .24236955  
 rho | .99339913 (fraction of variance due to u\_i)

-----  
 F test that all u\_i=0: F(4, 108) = 84.86 Prob > F = 0.0000

. est store fe

**Random Effect**

Random-effects GLS regression Number of obs = 117  
 Group variable: id Number of groups = 5

R-sq: within = 0.4329 Obs per group: min = 17  
 between = 0.9930 avg = 23.4  
 overall = 0.9419 max = 25

Wald chi2(4) = 1815.47  
 corr(u\_i, X) = 0 (assumed) Prob > chi2 = 0.0000

-----  
 lngdp | Coef. Std. Err. z P>|z| [95% Conf. Interval]  
 -----+-----  
 lngcf | .0072921 .0046427 1.57 0.116 -.0018074 .0163916  
 lsec | 2.306621 .0555908 41.49 0.000 2.197665 2.415577  
 open | -.6955676 .1595694 -4.36 0.000 -1.008318 -.3828172  
 exc | -.0656639 .0909753 -0.72 0.470 -.2439722 .1126443  
 \_cons | 9.561725 .3549583 26.94 0.000 8.86602 10.25743  
 -----+-----  
 sigma\_u | 0  
 sigma\_e | .24236955  
 rho | 0 (fraction of variance due to u\_i)  
 -----

. est store re

**Hausman Test**

---- Coefficients ----  
 | (b) (B) (b-B) sqrt(diag(V\_b-V\_B))  
 | fe re Difference S.E.  
 -----+-----  
 lngcf | .2214051 .0072921 .214113 .0867928  
 lsec | .7808361 2.306621 -1.525785 .1856603  
 open | .0711044 -.6955676 .766672 .1397806  
 exc | -.0943561 -.0656639 -.0286921 .0279418

-----  
 b = consistent under Ho and Ha; obtained from xtreg  
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(4) = (b-B)'[(V\_b-V\_B)^(-1)](b-B)  
 = 84.97  
 Prob>chi2 = 0.0000

**Non-Anglophone  
 Pooled Regression**

Source | SS df MS Number of obs = 227  
 -----+----- F( 4, 222) = 168.24  
 Model | 139.801355 4 34.9503387 Prob > F = 0.0000  
 Residual | 46.1177759 222 .207737729 R-squared = 0.7519  
 -----+----- Adj R-squared = 0.7475  
 Total | 185.919131 226 .82265102 Root MSE = .45578

-----  
 lngdp | Coef. Std. Err. t P>|t| [95% Conf. Interval]  
 -----+-----  
 lngcf | .0027357 .0029953 0.91 0.362 -.0031672 .0086386  
 lnsec | 1.801594 .0699728 25.75 0.000 1.663698 1.93949  
 open | -.6633577 .1598236 -4.15 0.000 -.9783232 -.3483922  
 exc | -.0085506 .0612241 -0.14 0.889 -.1292054 .1121043  
 \_cons | 12.76841 .3839125 33.26 0.000 12.01183 13.52499  
 -----

**Fixed Effect**

Fixed-effects (within) regression Number of obs = 227  
 Group variable: id Number of groups = 10

R-sq: within = 0.8801 Obs per group: min = 4  
 between = 0.7443 avg = 22.7  
 overall = 0.6469 max = 25

F(4,213) = 390.97  
 corr(u\_i, Xb) = 0.3986 Prob > F = 0.0000

-----  
 lngdp | Coef. Std. Err. t P>|t| [95% Conf. Interval]  
 -----+-----  
 lngcf | .0193238 .021493 0.90 0.370 -.0230425 .06169

```
Insec | 1.074571 .0378242 28.41 0.000 1.000013 1.149128
open | -.0935111 .0839859 -1.11 0.267 -.259061 .0720389
exc | -.0153222 .0158543 -0.97 0.335 -.0465736 .0159292
_cons | 16.114 .2277303 70.76 0.000 15.66511 16.5629
```

```
-----+-----
sigma_u | .66883597
sigma_e | .11433931
rho | .97160502 (fraction of variance due to u_i)
-----
```

F test that all u\_i=0: F(9, 213) = 368.29 Prob > F = 0.0000

. est store fe

### Random Effect

Random-effects GLS regression Number of obs = 227  
 Group variable: id Number of groups = 10

R-sq: within = 0.8798 Obs per group: min = 4  
 between = 0.8635 avg = 22.7  
 overall = 0.7412 max = 25

Wald chi2(4) = 1524.23  
 corr(u\_i, X) = 0 (assumed) Prob > chi2 = 0.0000

```
-----+-----
lngdp | Coef. Std. Err. z P>|z| [95% Conf. Interval]
-----+-----
lngcf | .0023236 .0119216 0.19 0.845 -.0210423 .0256896
Insec | 1.098397 .0357152 30.75 0.000 1.028396 1.168397
open | -.1078602 .0853991 -1.26 0.207 -.2752394 .0595189
exc | -.0153956 .0161903 -0.95 0.342 -.047128 .0163369
_cons | 16.10083 .2342265 68.74 0.000 15.64176 16.55991
```

```
-----+-----
sigma_u | .42994629
sigma_e | .11433931
rho | .93394808 (fraction of variance due to u_i)
-----
```

. est store re

### Hausman Test



---- Coefficients ----

| (b) (B) (b-B) sqrt(diag(V\_b-V\_B))

| fe re Difference S.E.

```
-----+-----
lngcf | .0193238 .0023236 .0170001 .0184782
lnsec | 1.074571 1.098397 -.0238258 .0149013
open | -.0935111 -.1078602 .0143492 .0095254
exc | -.0153222 -.0153956 .0000734 .0009974
-----
```

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$\chi^2(4) = (b-B)'[(V_b-V_B)^{-1}](b-B)$

= 13.74

Prob>chi2 = 0.0082

# GDP AND THE NEXUS AMONG FOREIGN DIRECT INVESTMENT, PRIVATE INVESTMENT AND PUBLIC INVESTMENT: EVIDENCE FROM ECOWAS COUNTRIES

Wakdok, Samuel Stephen.

## Abstract

*This paper aims to show the indication of the Nexus among the various types of investment both foreign and domestic in West Africa between 1990 and 2013 using the OLS Regression model. The results establish that there is a long run relationship among the three types of investment showing a steady decline in the inflow of FDI into these ECOWAS Countries. Domestic private investment was found to be critical to FDI. However, domestic public investment is very critical to the accumulation of capital in these countries and the effectiveness of FDI depends to a large extent on it. FDI does not crowd out domestic investments in ECOWAS countries as it has proven to be a veritable source of bridging the investment and therefore capital gap in these selected countries.*

**Keywords:** Gross Domestic Product, Foreign Direct Investment, Private Investment, Public Investment, ECOWAS.

**JEL Code:** F20, F23, F43, G31, O47.

## 1. Introduction

Towards the end of the twentieth century, Global Foreign Direct investment (FDI) flows began to rise astronomically. Emerging economies received sixty seven percent of this increased FDI compared to prior periods when such FDI went to the highly industrialized economies. In recent years, many emerging economies have transformed their economies to entice foreign direct investments while expecting FDI to usher in more funds, new technology and managerial skills. The amount of FDI flows to these countries increased steadily since the 1990s and reached \$583 billion in 2009. (SAGLAM, B & YALTA Y, 2011). Foreign direct investment is needed to reduce the gap between the desired gross domestic investment and domestic capital accumulation.

Due to the connection between foreign and domestic investments which constitutes an important aspect of evaluating the FDI-Growth nexus, a number of studies have come up to inquire whether FDI and domestic investments are compliments or substitutes in the beneficiary countries. The outcomes point out that the effects of FDI on domestic capital accumulation may fluctuate from one country to another, which is reliant on domestic policies and degree of financial freedom (ALFARO, 2004). The latitude of the technical gap between multinational and domestic firms, the types of FDI that a country receives and the sectorial dispersal of FDI (MELLO, 1999). The positive impact of FDI on the domestic investment will only be felt when FDI leads to new industries in the host economy as posited by (LIPSEY, 2002).

In analyzing the relationships between FDI and domestic investments, it is important to look at the nexus between FDI, private investment and public investment so that essential policy implications can be drawn to maximize the gains from foreign direct investments. These variables are allied over time and in a vibrant relationship where cause and effect can run from both directions. While a robust private investment climate indicating a high returns to capital, and a better public infrastructure through public investment are important in attracting foreign capital, it is also likely that FDI may compliment or substitute domestic investments. Despite its prominence, the empirical proof on this issue is scarce. (NDIKUMANA, 2008).

The aim of this paper is to investigate the possible interplay among foreign direct investment, domestic private and public domestic investments in 10 selected ECOWAS Countries. These ECOWAS countries are vital case for study because like many emerging economies, they have gone through a considerable progression of economic reforms/ cycles with consequent macroeconomic effects. Some of these countries are currently experiencing fiscal and foreign revenue crises due to the fall in commodity prices. A case is Nigeria which began liberalizing her economy since the structural adjustment program (SAP) of 1986 and this has led to a substantial FDI inflow. From \$193Million in 1986, FDI peaked at \$8.9Billion in 2011 before receding to \$5.66B in 2013. (IMF, 2014). But the question of the effects of foreign investment on domestic private and public investments still persists. Some studies revealed a positive relationship between FDI and domestic investment while some argued that FDI negatively affects domestic private and public investments.

This paper highlighted the nexus among the variables by using a multivariate framework. Previous studies focused on the general relationship between total domestic investment and FDI, overlooking the changing nexus between public and private investments in the 10 ECOWAS Countries.

## **2. Review of Related Literature**

Foreign Direct Investment (FDI) is a custom of advancing or investment in the region of equity involvement. It largely contains the relocation of assets including capital and know-how. For instance, the foreign direct investment flows in Nigeria reached fresh records for both inflow and outflows. Foreign investors did not only reduce the measure of firsthand outlay, they also amplified 'capital exportation' in 2014. Nigeria recorded the lowest FDI inflows in 2014 when compared with the prior five years. The FDI inflows that had grown from \$6.1 Billion in 2010 got to \$8.9Billion in 2011 and began a descending in 2012 to \$7.1Billion in 2012 and \$4.7 billion in 2014. (First Bank Research Weekly, 2015)

Observing the case of Malaysia, both public investment and FDI are corresponding with private investment (HOOI, 2011). For Pakistan, a scrutiny of the effect of FDI on import, export and GDP growth through a constrained vector error correction model over the period 1965 to 2005 established that there was no long-run relationship between FDI and GDP on the basis of co-integration (ARSHA, 2012). The apparently isolated regression model to inspect the consequence of FDI on economic growth in Nigeria contended that FDI is pro-consumption and pro-import which is adversely linked to gross domestic investment

(ADELEGAN, 2000). While probing the stimulus of FDI on firm-level throughput in Nigeria, Ayanwale, indicated a progressive spillover of external firms on home firms' productivity. (AYANWALE.A, 2007) In a bid to attract more foreign direct investment inflow, Nigeria moved away from the age of regulation to deregulation and to guided deregulation (EDOUMIEKUMO, 2012)

Undoubtedly, the empirical substantiation on FDI and growth nexus in Nigeria is not undisputed. For illustration, Odozi working on the factors of FDI in Nigeria before and after the structural adjustment program (SAP) discovered that the macro policies in place in the pre-SAP era subdued the inflow of FDI. (ODOZI, 1995). Such strategy occasioned the intensification of the parallel exchange markets and sustained capital flight. Hence, the empirical literature regarding the impact of FDI and domestic investment is divided, no certain conclusion can be drawn; many studies found a positive growth and domestic investment while others found a negative effect. (ALI, 2015).

In examining the trend of investment and its consequences on long-term economic growth in West Africa, distortions cause negative contributions of public investment to GDP growth. The domestic private investment consistently adds to greater GDP growth rates from 1970 to 1995 (ARIYO, 1998). The necessity for an established re-arrangement that distinguishes and safeguards the benefits of the key partners, (such as foreign investors) in the development of the economy is intensely backed. Due to the structure of their economies, the domestic public investment has always been very significant. However, the upswing in the foreign direct investment has made it possible for the countries to address the issue of the dearth of capital due to commodity prices fickleness.

The liberalization and privatizing programs of the successive governments in Nigeria since 1999 has seen a high rise of both FDI like MTN, Etisalat and Airtel, and domestic private investment like Globacom taking the telecoms sector as a study. The aviation sector has always seen a high level of domestic private investment since the liberalization of the sector. The educational sector too has observed a huge domestic private investment with the proliferations of schools, especially at the tertiary level. These developments question the findings which say that there is no significant long-run linkage among foreign direct investment, domestic private investment and domestic public investment as revealed by (OGBUAGU, 2014).

As argued in some literature, foreign direct investment is dire to the host economies by speeding up the process of the economic growth and development, its multiplier effect is larger (KALU,2015). The advice here is that ECOWAS economies should rely more on domestic private and public investments even while attracting foreign direct investment. The domestic private and public investments seem to be more stable as these have fewer chances of capital exportation than foreign direct investment.

The correlation between foreign direct investment and domestic investments in Latvia in a study showed a normative influence on domestic investment while using a quarterly data set from 1995 to 2004. (TITARENKO, 2006)

An inference was made that FDI crowds out domestic investment in an assessment of the crowding in/out effect of FDI in the Middle East and North Africa, and this is both for wealthy and non-wealthy nations (SEVIL, et al, 2012). An examination of the relationship among growth, FDI and gross fixed capital formation as domestic investment through a vector error correction model reveals that FD crowds in domestic investment. (LEAN and BEE, 2011). There seems to be a positive relationship between Human capital which is the basis for domestic gross capital formation and foreign direct investment as found out by (BALASUBRAMAYAM et al, 1996). In every way, foreign direct investment influences to a great extent variables such as research and development, human capital. It is apparent too that there is a presence of spillover effects in labor markets through learning and its influence on the productivity of domestic investments as opined by (SJOHOLM F, 1999). We cannot rule out the fact that West Africa places high premium on Foreign Direct Investment and the requisite channel of the effects of FDI on the development is by the interfaces of FDI and domestic private and public investment (AMMASSOMA D and OGBUAGU M, 2014)

### **3.0 Data and Methodology**

Foreign Direct Investments are the net inflows of investment to acquire a lasting management interest (10% or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum equity, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments.

Using the annual data for the period 1990-2013, Domestic Private Investment (DPriv.I) and Public Investment (DPub.I) are estimated by gross fixed capital formation and Government Capital Expenditure on Economic and Social services respectively. The data on private and public investments are collected from the World Bank and International Monetary Fund's website data from 1990 to 2013. All data are expressed in logarithm. We depend on the ordinary least square regression model for our empirical analysis to examine the dynamic linkage between FDI, Public and Private Investments as earlier done in the case of Turkey by (SAGLAM, B & YALTA Y, 2011). The advantage of OLS model is that dependent variables are expressed as functions of their own and each other's lagged values and all the variables are allowed to affect each other (ENDERS W, 1995).

#### **3.1 Study area**

The study was designed to cover the Federal Republic of Nigeria, Benin Republic, Burkina Faso, Cape Verde, Ivory Coast, Ghana, Guinea, Guinea Bissau, Liberia and Niger Republic.

#### **3.2 Method of Data Collection**

This research work only utilized secondary data from the World Bank and International Monetary Fund's website data from 1990 to 2013.

### 3.3 Method of Data Analysis

Models were specified and ordinary least square (OLS) regression was used to analyze the models. Estimation of parameters of the models required data on Gross Domestic Product (GDP), Gross Fixed Capital formation, Foreign Direct Investment (FDI), Government final expenditure on economic and social services and Private final expenditure on economic and social services. Some criteria such as coefficient of determination ( $R^2$ ), T-test, F-test and Durbin Watson (DW) statistics were used. Durbin Watson statistics was used to be able to examine the extent of serial correlation among variables.

### 3.4 Model specification

$$Y = F(X_1, X_2, X_3, X_4) + U_t$$

Where

Y	=	Gross Domestic Product (Y)
X <sub>1</sub>	=	Gross capital formation (GCF)
X <sub>2</sub>	=	Foreign Direct Investment (FDI)
X <sub>3</sub>	=	Government final expenditure on economic and social services (GFE)
X <sub>4</sub>	=	Private final expenditure on economic and social services (PFE)
U <sub>t</sub>	=	Stochastic (error) variable

In the model above, where the Gross Domestic Product is the dependent variable. The GDP had continued to grow from 1990-2013 with an abysmal growth in (highest) in 2013. Likewise Gross capital formation (X<sub>1</sub>) and Foreign Direct Investment (X<sub>2</sub>), also increased and this increased Government final expenditure on economic and social services (X<sub>3</sub>) and Private final expenditure on economic and social services as well, within this period (1990-2013). This research revealed that increase in Domestic Public Investment as denoted by government expenditure (X<sub>1</sub>) increases Gross Domestic Product.

### 3.5 Summary of the Data results:

#### 1- Nigeria:

$$RGDP_{t-1} = 4.98 + 7.045NGCF + 4.701FDI + 39.210NGFE + 40.072NPFE + U_t$$

(0.141) (1.395)                      (2.253)                      (2.429) (2.1196)

*T-statistics are in parenthesis*

$$R^2 = 0.4873 \quad \text{Adjusted } R^2 = 0.3793$$

$$F\text{-Statistics} = 4.513 \quad D\text{-W} = 1.57$$

The above equation shows that Gross capital formation (X<sub>1</sub>), Foreign Direct Investment (X<sub>2</sub>), Government final expenditure on economic and social services (X<sub>3</sub>), and Private final expenditure on economic and social services (X<sub>4</sub>) positively correlated with Gross Domestic Product (GDP).

From the Nigerian econometric model above, the result indicates that  $R^2$  is 0.49. This shows that over 49 % of the variation in Gross Domestic Product (GDP) growth is explained by the

four independent variables taken together. The coefficients of Gross capital formation, Foreign Direct Investment, Government final expenditure on economic and social services and Private final expenditure on economic and social services are positive and significant at 5% level of significance.

### **2- Benin Republic:**

$$RGDP_t = 0.617 + 0.1198BGCF - 0.0008BFDI + 0.122BGFE + 0.650BPFE + U_t$$

(5.647) (6.498)                      (-1.272)                      (2.588) (11.990)

$$R^2 = 0.9989 \quad \text{Adjusted } R^2 = 0.9987$$

$$F\text{-Statistics} = 4448.37 \quad D\text{-W} = 1.67$$

The above equation shows that Gross capital formation ( $X_1$ ) Government final expenditure on economic and social services ( $X_3$ ), and Private final expenditure on economic and social services ( $X_4$ ) positively correlated with Gross Domestic Product (GDP) while Foreign Direct Investment ( $X_2$ ) negatively correlated with Gross Domestic Product (GDP).

From the Benin Republic econometric model above, the result indicates that  $R^2$  is 0.99. This shows that over 99 % of the variation in Gross Domestic Product (GDP) growth is explained by the four independent variables taken together. The coefficients of Gross capital formation, Government final expenditure on economic and social services and Private final expenditure on economic and social services are positive and significant at 5% level of significance while Foreign Direct Investment is negative. This shows that the growth of Gross capital formation, Government final expenditure on economic and social services and Private final expenditure on economic and social services have positive effect on the growth of the Benin Republic economy.

### **3- Cape Verde**

$$RGDP_t = 29.345 + 10.823CGCF + 1.951CFDI + 19.407CGFE + 11.598CPFE + U_t$$

(1.287) (1.916)                      (2.562)                      (2.136)                      (1.222)

$$R^2 = 0.538 \quad \text{Adjusted } R^2 = 0.440$$

$$F\text{-Statistics} = 5.53 \quad D\text{-W} = 1.70$$

The above equation shows that Gross capital formation ( $X_1$ ), Foreign Direct Investment ( $X_2$ ), Government final expenditure on economic and social services ( $X_3$ ), and Private final expenditure on economic and social services ( $X_4$ ) positively correlated with Gross Domestic Product (GDP).

From the Cape Verde econometric model above, the result indicates that  $R^2$  is 0.54. This shows that over 54 % of the variation in Gross Domestic Product (GDP) growth is explained by the four independent variables taken together. The coefficients of Gross capital formation, Foreign Direct Investment, Government final expenditure on economic and social services and Private final expenditure on economic and social services are positive and significant at 5% level of significance. This shows that the growth of Gross capital formation, Foreign Direct Investment, Government final expenditure on economic and social services and



Private final expenditure on economic and social services have positive effect on the growth of the Cape Verde economy.

#### 4- Ivory Coast:

$$RGDP_t = 0.35 + 0.03CDGCF + 0.004CDFDI + 0.11CDGFE + 0.85CDPFE + U_t$$

(1.362) (1.802) (1.576) (2.196) (18.708)

$$R^2 = 0.990 \quad \text{Adjusted } R^2 = 0.988$$

$$F\text{-Statistics} = 476.92 \quad D\text{-W} = 2.45$$

The above equation shows that Gross capital formation ( $X_1$ ), Foreign Direct Investment ( $X_2$ ), Government final expenditure on economic and social services ( $X_3$ ), and Private final expenditure on economic and social services ( $X_4$ ) positively correlated with Gross Domestic Product (GDP).

From the Ivory Coast econometric model above, the result indicates that  $R^2$  is 0.99. This shows that over 99 % of the variation in Gross Domestic Product (GDP) growth is explained by the four independent variables taken together. The coefficients of Gross capital formation, Foreign Direct Investment, Government final expenditure on economic and social services and Private final expenditure on economic and social services are positive and significant at 5% level of significance. This shows that the growth of all the variables have positive effect on the growth of the economy.

#### 5- Ghana

$$RGDP_t = 88.152 + 8.43GGCF + 2.738GFDI + 2.889GGFS + 15.318GPFE + U_t$$

(1.487) (1.381) (1.547) (0.3379) (1.522)

$$R^2 = 0.540 \quad \text{Adjusted } R^2 = 0.443$$

$$F\text{-Statistics} = 5.582 \quad D\text{-W} = 1.696$$

The above equation shows that Gross capital formation ( $X_1$ ), Foreign Direct Investment ( $X_2$ ), Government final expenditure on economic and social services ( $X_3$ ), and Private final expenditure on economic and social services ( $X_4$ ) positively correlated with Gross Domestic Product (GDP).

From the Ghanaian econometric model above, the result indicates that  $R^2$  is 0.54. This shows that over 54 % of the variation in Gross Domestic Product (GDP) growth is explained by the four independent variables taken together. The coefficients of Gross capital formation, Foreign Direct Investment, Government final expenditure on economic and social services and Private final expenditure on economic and social services are positive and significant at 5% level of significance. This shows that the growth of all the variables have positive effects on the growth of the Ghanaian economy.

#### 6- Guinea:

$$RGDP_t = 1.189 + 0.137GGCF + 0.005GFDI + 0.139GGFE + 0.629GPFE + U_t$$

$$R^2 = 0.989 \quad (5.719) \quad (3.166) \quad (1.771) \quad (4.078) \quad (15.489)$$

$$\text{Adjusted } R^2 = 0.987$$

$$F\text{-Statistics} = 424.75 \quad D\text{-W} = 1.64$$

The above equation shows that Gross capital formation (X<sub>1</sub>), Foreign Direct Investment (X<sub>2</sub>), Government final expenditure on economic and social services (X<sub>3</sub>), and Private final expenditure on economic and social services (X<sub>4</sub>) positively correlated with Gross Domestic Product (GDP).

From the Guinean econometric model above, the result indicates that R<sup>2</sup> is 0.98. This shows that over 98 % of the variation in Gross Domestic Product (GDP) growth is explained by the four independent variables taken together. The coefficients of all the independent variables are positive and significant at 5% level of significance. This shows that the growth of these variables have positive effects on the growth of the Guinean economy.

**7- Guinea Bissau:**

$$RGDP_t = 0.32 + 0.05GBGCF - 0.003GBFDI + 0.143GBGFE + 0.796GBPFE + U_t$$

$$(0.742) \quad (1.341) \quad (-0.221) \quad (2.471) \quad (11.974)$$

$$R^2 = 0.963 \quad \text{Adjusted } R^2 = 0.956$$

$$F\text{-Statistics} = 126.97 \quad D\text{-W} = 1.47$$

The above equation shows that Gross capital formation (X<sub>1</sub>) Government final expenditure on economic and social services (X<sub>3</sub>), and Private final expenditure on economic and social services (X<sub>4</sub>) positively correlated with Gross Domestic Product (GDP) while Foreign Direct Investment (X<sub>2</sub>) negatively correlated with Gross Domestic Product (GDP).

From the Guinea Bissau econometric model above, the result indicates that R<sup>2</sup> is 0.96. This shows that over 96 % of the variation in Gross Domestic Product (GDP) growth is explained by the four independent variables taken together. The coefficient of Gross capital formation, Government final expenditure on economic and social services and Private final expenditure on economic and social services are rightly signed (that is positive) and significant at 5% level of significance while Foreign Direct Investment is rightly signed (that is negative). This shows that the growth of all but FDI have positive effect on the growth of the Guinea Bissau economy.

**8- Liberia:**

$$RLGDP_{t-2} = -4.015 + 0.16LGCF - .33LFDI + 0.092LGFE + 1.091LPFE + U_t$$

$$(-0.484) \quad (0.078) \quad (-3.091) \quad (0.066) \quad (0.794)$$

$$R^2 = 0.769 \quad \text{Adjusted } R^2 = 0.687$$

$$F\text{-Statistics} = 9.42 \quad D\text{-W} = 2.31$$

The above equation shows that Gross capital formation (X<sub>1</sub>) Government final expenditure on economic and social services (X<sub>3</sub>), and Private final expenditure on economic and social

services (X<sub>4</sub>) positively correlated with Gross Domestic Product (GDP) while Foreign Direct Investment (X<sub>2</sub>) negatively correlated with Gross Domestic Product (GDP).

From the Liberian econometric model above, the result indicates that R<sup>2</sup> is 0.77. This shows that over 77 % of the variation in Gross Domestic Product (GDP) growth is explained by the four independent variables taken together. The coefficients of Gross capital formation, Government final expenditure on economic and social services and Private final expenditure on economic and social services are positive and significant at 5% level of significance while Foreign Direct Investment is negative. This shows that the growth of Gross capital formation, Government final expenditure on economic and social services and Private final expenditure on economic and social services have positive effect on the growth of the Liberian economy.

**9- Niger Republic:**

$$RGDP_t = 0.33 + 0.080NIGCF + 0.0002NIFDI + 0.066NIGFE + 0.75NIPFE + U_t$$

(1.890) (3.919) (0.168) (1.864) (8.334)

R<sup>2</sup> = 0.9979     Adjusted R<sup>2</sup> = 0.9976  
 F-Statistics = 2345.37     D-W = 2.012

The above equation shows that Gross capital formation (X<sub>1</sub>), Foreign Direct Investment (X<sub>2</sub>), Government final expenditure on economic and social services (X<sub>3</sub>), and Private final expenditure on economic and social services (X<sub>4</sub>) positively correlated with Gross Domestic Product (GDP).

From the Niger econometric model above, the result indicates that R<sup>2</sup> is 0.99. This shows that over 99 % of the variation in Gross Domestic Product (GDP) growth is explained by the four independent variables taken together. The coefficient of Gross capital formation, Foreign Direct Investment, Government final expenditure on economic and social services and Private final expenditure on economic and social services are positive and significant at 5% level of significance. This shows that the growth of all the variables have positive effect on the growth of the Nigerien economy.

**10- Burkina Faso:**

$$RGDP_{t-1} = 13.61 + 3.12BFGCF + 1.71BFFDI + 2.85BFGFS + 2.022BFPFE + U_t$$

(0.790) (0.524) (2.321) (0.279) (0.319)

R<sup>2</sup> = 0.314     Adjusted R<sup>2</sup> = 0.170  
 F-Statistics = 2.18     D-W = 1.63

The above equation shows that Gross capital formation (X<sub>1</sub>), Foreign Direct Investment (X<sub>2</sub>), Government final expenditure on economic and social services (X<sub>3</sub>), and Private final expenditure on economic and social services (X<sub>4</sub>) positively correlated with Gross Domestic Product (GDP).

From the Burkina Faso econometric model above, the result indicates that R<sup>2</sup> is 0.31. This shows that over 31 % of the variation in Gross Domestic Product (GDP) growth is explained

by the four independent variables taken together. The coefficients of Gross capital formation, Foreign Direct Investment, Government final expenditure on economic and social services and Private final expenditure on economic and social services are positive and significant at 5% level of significance. This shows that the growth of these variables have positive effect on the growth of the Burkina Faso economy.

#### 4.0 Conclusion and Recommendations

A significant conduit of the consequent of FDI on improvement in the domestic economics is as a result of interfaces amongst FDI and the domestic investments. This paper set out to provide proof among these nexus to exploit the paybacks of FDI. The outcomes have useful strategy inferences to encourage FDI and to get the supreme advantage from the interplay of foreign and local investments. An examination of the nexus among FDI, domestic private and public investment in 10 selected ECOWAS countries between 1990 and 2013 using the OLS Regression model was used to determine the long run relationship among these types of investments. The outcomes suggested that there is a long run positive correlation among them. The conclusion emerging from this study is that Domestic Public and Private Investments which have Gross capital formation, Foreign Direct Investment, Government expenditure on economic and social services and Private expenditure on economic and social services as proxies have positive effect on the real GDP while Foreign Direct Investment was not so effective in some member countries.

The role of Investment promotion is to improve the business environment which will put the right structures to attract pipeline investments for the ECOWAS countries at such a critical time. Competitiveness, growth and sustainability, attractiveness and visibility are germane to attract foreign investment or mobilizing domestic investments. There must be a conscious effort to rebrand the hostile nature of ECOWAS economies to that of innovation driven economies, political stability also plays a major role in assuring investors. Diversifying the economy from primary resource base to multiple sources guaranteed by foreign direct investment and domestic private/public investments to a large extent depends on the ease of doing business. Businesses must not be squeezed by corruption and inefficiencies of government institutions or by dearth of critical infrastructure and insecurity. The role of the policy makers should be to streamline the requirements needed by investors whether foreign or domestic as investors want certainty, transparency, responsiveness and security.

Base on the outcome of this study, the ECOWAS countries should increase their Domestic Public Investments on capital goods and provide investment friendly policies as well as provide the enabling environment for the growth of domestic Private Investment and FDI to encourage productivity and improve sustainable development among her member States.

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### Appendix 1: Nigeria

Dependent Variable: NGDP<sub>t-1</sub>

Method: Least Squares

Date: 02/24/16 Time: 10:17

Sample: 1990 2013

Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NGCF	-7.044901	5.049578	-1.395147	0.1791
NFDI	4.701403	2.087196	2.252497	0.0363
NGFC	-39.20968	16.14394	-2.428756	0.0252
NPFC	40.07156	18.25044	2.195649	0.0407
C	4.974461	35.17652	0.141414	0.8890
R-squared	0.487252	Mean dependent var		10.59292
Adjusted R-squared	0.379305	S.D. dependent var		2.281579
S.E. of regression	1.797524	Akaike info criterion		4.193749
Sum squared resid	61.39076	Schwarz criterion		4.439177
Log likelihood	-45.32499	F-statistic		4.513809
Durbin-Watson stat	1.573744	Prob(F-statistic)		0.009874

Source: E-views 7.0

### Appendix 2: Benin Republic

Dependent Variable: BGDPT

Method: Least Squares

Date: 02/24/16 Time: 10:35

Sample: 1990 2013

Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BGCF	0.198392	0.030531	6.498026	0.0000
BFDI	-0.000835	0.000656	-1.272131	0.2187
BGFC	0.122026	0.047161	2.587447	0.0181
BPFC	0.650013	0.054211	11.99050	0.0000
C	0.616908	0.109229	5.647865	0.0000
R-squared	0.998933	Mean dependent var		9.532917
Adjusted R-squared	0.998709	S.D. dependent var		0.231338
S.E. of regression	0.008313	Akaike info criterion		-6.558984
Sum squared resid	0.001313	Schwarz criterion		-6.313556
Log likelihood	83.70780	F-statistic		4448.370
Durbin-Watson stat	1.669169	Prob(F-statistic)		0.000000

Source: E-views 7.0

**Appendix 3: Cape Verde**Dependent Variable: CGDP<sub>t-1</sub>

Method: Least Squares

Date: 02/24/16 Time: 10:41

Sample: 1990 2013

Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CGCF	-10.82165	5.649079	-1.915648	0.0706
CFDI	1.950619	0.761414	2.561839	0.0191
CGFC	19.40696	9.085993	2.135921	0.0459
CPFC	-11.59819	9.485213	-1.222766	0.2364
C	29.34495	22.79904	1.287113	0.2135
R-squared	0.537980	Mean dependent var		8.534583
Adjusted R-squared	0.440712	S.D. dependent var		1.833526
S.E. of regression	1.371212	Akaike info criterion		3.652319
Sum squared resid	35.72423	Schwarz criterion		3.897747
Log likelihood	-38.82783	F-statistic		5.530935
Durbin-Watson stat	1.704085	Prob(F-statistic)		0.003985

Source: E-views 7.0

**Appendix 4: Ivory Coast**

Dependent Variable: CDGDP

Method: Least Squares

Date: 02/24/16 Time: 10:52

Sample: 1990 2013

Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CDGCF	0.030872	0.017125	1.802773	0.0873
CDFDI	0.003614	0.002294	1.575528	0.1316
CDGFC	0.110406	0.050265	2.196489	0.0407
CDPFC	0.848410	0.045350	18.70806	0.0000
C	0.346674	0.254487	1.362247	0.1891
R-squared	0.990138	Mean dependent var		10.17667
Adjusted R-squared	0.988062	S.D. dependent var		0.147609
S.E. of regression	0.016128	Akaike info criterion		-5.233501
Sum squared resid	0.004942	Schwarz criterion		-4.988073
Log likelihood	67.80201	F-statistic		476.9167
Durbin-Watson stat	2.547517	Prob(F-statistic)		0.000000

Source: E-views 7.0

**Appendix 5: Ghana**Dependent Variable: GGDP<sub>t-2</sub>

Method: Least Squares

Date: 02/24/16 Time: 11:02



Sample: 1990 2013

Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GGCF	8.427529	6.103322	1.380810	0.1834
GFDI	2.738580	1.770845	1.546482	0.1385
GGFC	-2.888585	7.628518	-0.378656	0.7091
GPFC	-15.31794	10.06619	-1.521722	0.1445
C	88.15173	59.29007	1.486788	0.1535
R-squared	0.540297	Mean dependent var		9.302500
Adjusted R-squared	0.443518	S.D. dependent var		2.871829
S.E. of regression	2.142319	Akaike info criterion		4.544707
Sum squared resid	87.20109	Schwarz criterion		4.790135
Log likelihood	-49.53648	F-statistic		5.582768
Durbin-Watson stat	1.695937	Prob(F-statistic)		0.003812

Source: E-views 7.0

### Appendix 6: Guinea

Dependent Variable: GGDP

Method: Least Squares

Date: 02/24/16 Time: 11:06

Sample: 1990 2013

Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GGCF	0.136775	0.043207	3.165569	0.0051
GFDI	0.005261	0.002971	1.770778	0.0926
GGFC	0.139404	0.034180	4.078485	0.0006
GPFC	0.629285	0.040627	15.48935	0.0000
C	1.188493	0.207826	5.718696	0.0000
R-squared	0.988941	Mean dependent var		9.592083
Adjusted R-squared	0.986612	S.D. dependent var		0.114739
S.E. of regression	0.013276	Akaike info criterion		-5.622681
Sum squared resid	0.003349	Schwarz criterion		-5.377253
Log likelihood	72.47217	F-statistic		424.7487
Durbin-Watson stat	1.647399	Prob(F-statistic)		0.000000

Source: E-views 7.0

### Appendix 7: Guinea Bissau

Dependent Variable: GBGDP

Method: Least Squares

Date: 02/24/16 Time: 11:11

Sample: 1990 2013

Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GBGCF	0.051317	0.038277	1.340678	0.1958

GBFDI	-0.002500	0.011291	-0.221443	0.8271
GBGFC	0.142667	0.057737	2.470980	0.0231
GBPFC	0.795471	0.066433	11.97405	0.0000
C	0.322571	0.434553	0.742304	0.4670
R-squared	0.963938	Mean dependent var		8.788750
Adjusted R-squared	0.956346	S.D. dependent var		0.140227
S.E. of regression	0.029298	Akaike info criterion		-4.039519
Sum squared resid	0.016309	Schwarz criterion		-3.794091
Log likelihood	53.47423	F-statistic		126.9677
Durbin-Watson stat	1.468297	Prob(F-statistic)		0.000000

Source: E-views 7.0

**Appendix 8: Liberia**

Dependent Variable: LGDP<sub>t-2</sub>

Method: Least Squares

Date: 02/24/16 Time: 11:23

Sample: 1990 2013

Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LGDP <sub>t-3</sub>	0.440325	0.197286	2.231914	0.0394
LGDP <sub>t-4</sub>	0.330853	0.199198	1.660928	0.1151
LGCF	-0.155416	1.985145	-0.078290	0.9385
LFDI	-0.458212	0.148236	-3.091100	0.0066
LGFC	0.151634	2.314159	0.065524	0.9485
LPFC	1.091617	1.373720	0.794643	0.4378
C	-4.015142	8.294828	-0.484054	0.6345
R-squared	0.768803	Mean dependent var		7.957500
Adjusted R-squared	0.687204	S.D. dependent var		2.463637
S.E. of regression	1.377867	Akaike info criterion		3.717443
Sum squared resid	32.27478	Schwarz criterion		4.061042
Log likelihood	-37.60931	F-statistic		9.421731
Durbin-Watson stat	2.313554	Prob(F-statistic)		0.000123

Source: E-views 7.0

**Appendix 9: Niger**

Dependent Variable: NIGDP

Method: Least Squares

Date: 02/24/16 Time: 11:27

Sample: 1990 2013

Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NIGCF	0.079720	0.020344	3.918510	0.0009
NIFDI	0.000172	0.001026	0.167551	0.8687
NIGFC	0.165775	0.088941	1.863870	0.0779

NIPFC	0.749581	0.089945	8.333813	0.0000
C	0.329668	0.174408	1.890212	0.0741
R-squared	0.997979	Mean dependent var		9.472500
Adjusted R-squared	0.997553	S.D. dependent var		0.216238
S.E. of regression	0.010696	Akaike info criterion		-6.054848
Sum squared resid	0.002174	Schwarz criterion		-5.809421
Log likelihood	77.65818	F-statistic		2345.371
Durbin-Watson stat	2.019007	Prob(F-statistic)		0.000000

Source: E-views 7.0

### Appendix 10: Burkina Faso

Dependent Variable: BFGDP<sub>t-1</sub>

Method: Least Squares

Date: 02/24/16 Time: 11:32

Sample: 1990 2013

Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BFGCF	3.116922	5.943635	0.524413	0.6061
BFFDI	1.707162	0.735377	2.321477	0.0315
BFGFC	-2.852249	10.20793	-0.279415	0.7829
BFPFC	-2.021777	6.343757	-0.318703	0.7534
C	13.60664	17.20410	0.790895	0.4388
R-squared	0.314630	Mean dependent var		9.221667
Adjusted R-squared	0.170342	S.D. dependent var		1.977092
S.E. of regression	1.800845	Akaike info criterion		4.197441
Sum squared resid	61.61784	Schwarz criterion		4.442869
Log likelihood	-45.36930	F-statistic		2.180567
Durbin-Watson stat	1.631055	Prob(F-statistic)		0.110192

Source: E-views 7.0

## STAGFLATION AND POVERTY INCIDENCE IN WEST AFRICA: CAUSES, EFFECT AND REMEDIES. A PANEL DATA ANALYSIS

Adolphus Ademola James

### Abstract

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*This paper empirically investigated stagflation and poverty incidence in West Africa Sub region based on the causes, effect and remedies using panel data analysis. The persistence of high inflation, unemployment and poverty level in the sub region creating growth instability and social digressions was the motivation behind this paper. To carry out the empirical study, 15 West African countries were selected based on the availability of required information. Data were collected from World Bank data catalog, world economic outlook and IMF on key variables which are Poverty Rate, Unemployment Rate, Inflation Rate, Gross Domestic Product, Government Expenditure on Health and Education, Foreign Debt (specifically from IMF and IBRD), and Gross Domestic Investment. Stagflation was measured using the UK misery Index that is the addition of unemployment and inflation rate and then divided by two. A structural equation model was formulated consisting of three equations with the first two equations formulated to examine the causes of stagflation and poverty incidence and the last equation to examine the effect of stagflation and poverty on the economic growth of the Region. The variables were subjected to various statistical and econometric tests, since the variables were all stationary at level the three stage error correction estimation technique by Baltagi and Li was used to estimate the Structural model. The result indicated that government spending and foreign loans do not have any significant impact on poverty and stagflation in the sub region suggesting that they may have been spent recklessly. Furthermore adequate recommendations and suggestions were proposed based on the findings of this study.*

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**Keywords:** Stagflation, Poverty, Incidence, Development,

### 1.0 Introduction

*“Overcoming poverty is not a task of charity; it is an act of justice, like slavery and apartheid poverty is not natural, it is man-made and it can be overcome and eradicated by the actions of human beings” (Mandela, 1993).*

The West Africa sub region is made up of seventeen countries with diverse ethnicity and traditions. It consists of a population of 250 million people with above half of its population living in Nigeria. The economy of West Africa consists of the trade, industry, agriculture, and human resources of the continent. West Africa is a resource-rich continent but many African people are poor. Recent growth has been due to growth in sales in commodities, services, and manufacturing. West Africa is expected to reach a GDP of \$19 trillion by 2050 but its income inequality will be a major deterrent in wealth distribution. In March 2013, Africa was identified as the world's poorest inhabited continent; however, the World Bank expects that most African countries will reach "middle income" status (defined as at least US\$1,000 per person a year) by 2025 if current growth rates continue. In 2013, Africa was the world's

fastest-growing continent at 5.6% a year and GDP is expected to rise by an average of over 6% a year between 2013 and 2023. Growth has been present throughout the continent, with over one-third of African countries posting 6% or higher growth rates, and another 40% growing between 4% to 6% per year.

Trade has driven much of the growth in West Africa's economy in the early 21st century. China and India are increasingly important trade partners; 12.5% of Africa's exports are to China, and 4% are to India, which accounts for 5% of China's imports and 8% of India's. The Group of Five (Indonesia, Malaysia, Saudi Arabia, Thailand, and the United Arab Emirates) are another increasingly important market for West Africa's exports. West Africa's economy—with expanding trade, English language skills (official in many Sub-Saharan countries), improving literacy and education, availability of splendid resources and cheaper labour force—is expected to continue to perform better into the future. Trade between Africa and China stood at US\$166 billion in 2011. West Africa will experience a "demographic dividend" by 2035, when its young and growing labour force will have fewer children and retired people as dependents as a proportion of the population, making it more demographically comparable to the US and Europe. It is becoming a more educated labour force, with nearly half expected to have some secondary-level education by 2020. A consumer class is also emerging in West Africa and is expected to keep booming. West Africa has around 40 million people with household incomes exceeding \$5,000, meaning that they can direct more than half of their income towards discretionary spending rather than necessities. This number could reach a projected 68 million by 2020.

The West African sub region is made up of mostly low income countries with gross national product per capital ranging from 1330 USD in Cape Verde to 130 USD in Sierra Leone in 2005. The international food policy research institute stated that “the coincidence of severe and persistent poverty and hunger in West Africa indicates the presence of poverty traps condition from which individuals or groups cannot emerge without the help of others” (IFPRI).

UNCTAD identifies generalized poverty as a situation in which major parts of the population lives or are below the minimum income level sufficient to meet their living standard. The low per capita income suggest the presence of generalize poverty in West Africa. Basically the West African region produces the highest poverty rate figure that is the highest percentage of people living below 2 USD a day. Countries like Niger recorded a high poverty rate about 80.3 percent of its population living less than 8 USD a day in 1992.

The poverty situation in West Africa is quite different from other region because it cuts across both the rich and poor West African states based on Gross Domestic Product. Nigeria in 2001 had 49.138 billion as its GDP but still about 53.5 percent of its population living below 8 USD a day, whereas Niger with a significant lesser GDP of 1.815 billion dollars had similar poverty rate with Nigeria with about 67.8 percent of its citizens living below 2 USD a day. Thus one can identify that poverty in West Africa is widespread and unresponsive to GDP.

Poverty incidences in West African have not been ameliorated despite the emergence and rapid spread of globalization and the increasing flow of aids to the sub-region. Most

economies of the sub-region have tended to grow faster in year 2000 than in the 1990's this have not been translated into increases in living standards of West African population. From open data source majority of West African population as at 2012 resides in the rural areas and subsistence agriculture remains their major occupation. The incidence of poverty in West Africa is generally measured by estimating poverty lines derived from household surveys or using the international poverty line of purchasing power parity (IPPP) of \$1 or \$2 per day.

Poverty is a multi dimensional phenomenon that encompasses not only the individual physical condition as measured by consumption expenditure or income (odour and Ayree 2003). Poverty encompasses a person social interaction and state of mental wellbeing. United nation development program (UNDP) indicator of human development at 2010 ranked West African countries as amongst the bottom 25 percent countries of the human development scale consisting of 183 countries. Over the last ten years the improvement in the human development index for several West African countries may be described as insignificant. However countries in the sub region such as Mali, Cape Verde and Benin have recorded sustain increase in the human development index.

The high rate of generalized poverty in West Africa have resulted in various regional political and social unrest in many West African states which have cause high death rate and loss of properties. In order to tackle and solve the problem of poverty in West Africa policy makers need to clearly identify the causes of the endemic poverty in this region.

Stagflation on the other hand is a special case caused by policy error. Stagflation or shortage-flation occurs when there is high inflation with low output. Basically stagflation as a macroeconomic concept refers to high rate of inflation accompanied by high rate of unemployment. The first incidence of Stagflation can be traced to 1973 when the members of organization of Arab petroleum exporting countries (OAPEC) proclaimed oil embargo on October 1973 the price of the oil rose abruptly from 3.87 USD per barrel (1973) to 10.37 USD (1974). This rise in oil price lowered output and consequently raised inflation rate in most developed economies, Bruno and Sachs (1985) extensively analyzed the causes of stagflation, emphasizing its influence on key economic variable such as productivity, wages, commodity prices, monetary and fiscal policy.

The West African region is characterized by high unemployment rate especially among vibrant youth which are willing and able to work, and the high rate of unemployment is accompanied by inflation suggesting the presence of stagflation. Ghana at 2013 had 11.04 percent inflation rate with 4.6 percent of its labour force unemployed, Guinea had 12.7 percent inflation rate and 6.8 percent of its labour force unemployed as at 2013, for Niger it was 2.7 percent inflation rate and 5.2 percent unemployment rate, Togo was 3.18 percent inflation rate and 6.9 percent unemployment rate.

Although growth and GDP have continued to increase in this region but this has not been translated to a reduction in unemployment rate violating the Okun's law. The Nigerian case is a puzzle considering its resources endowment and its relatively significant larger GDP compared to the other West African countries GDP's, one would expect Nigeria to have one of the highest unemployment rate in the region measure by the percentage of labour force

redundant, contrary to this at 2013 Nigeria had 9.87 percent inflation rate and 7.5 percent unemployment rate.

In the course of the 20<sup>th</sup> century West Africa went through a revolution consisting of an explosion in population, the rise of huge cities and the rapid integration of the region into the world economy. Despite this the region remains poor when compared to other parts of the world. Decades after decades politicians and international organization have failed to reduce poverty incidence in West African more or less resolve the peculiar problem of acute unemployment, inflation and stunted economic growth of the region. Worse between 1975 and 2000 the sub region was amongst the only places on earth where poverty has intensified. Over half of West African citizen lives below poverty line of I USD a day, while the rest of the world grew at an annual rate of close to 2 percent from 1960 to 2006. Growth performance in West African has been dismal; in the mid 1990's growth rate of gross domestic product (GDP) have been about 1.5 percent negative, as a consequence millions of West African and vast majority live below poverty line.

Stagflation incidence in West African sub region is traced down to policy error which is largely caused by the failure of most African nations to modify and fine tune the received macro-economic doctrine to suite the regional context and complexity. Macroeconomic policies have been rigorously adopted by many West African countries policies such as exchanging rules devaluation, trade policy, monetary and fiscal policy but these policies have not yielded desirable results. In Nigeria the IMF conditions for the grant of the notable 1986 loans and the devaluation of the naira have been identified to be the cause of Nigeria economic woes creating inflation, unemployment and poverty.

The evidence of stagflation in West African sub region has made poverty reduction and poverty alleviation programmes ineffective in the region. Niger for instance has 49.3 percent of its population living below poverty line of 2 USD a day at 2013 accompanied by high inflation and high unemployment. Stagflation and poverty incidence are interrelated in West African and there is likely to be a casual relationship between these two dreaded economic and social phenomenon.

Furthermore poverty and the stagflation being so pronounced in West African may have certain influence and impact of economic growth in the sub region creating constraint to economic growth and development in the region.

The challenge of high poverty incidence in West Africa is of a different order from other region and will require different strategies to reduce it. Most of the West African states have not been growing and their income level is too low for redistribution to resolve poverty. Hence the region problem is to break out an economic stagnation that has persisted for three decades.

Although certain West African economy are experiencing substantial level of GDP growth, countries like Nigeria, Ghana and cote d'voire recorded constant increase in GDP from 2005 to 2014, but these has not been translated into reduction in poverty rate and unemployment. West African growth failure has attracted competing explanation. During the 1980's the



World Bank diagnosed the problem as inappropriate economic policies, Berg (1981) offering the first clear statement of this position. Collier (2010) argued that cause of generalized poverty in West African is not rooted in the region peculiarities; rather it is based on geographical features of the region.

## 2.0 Evidence of Stagflation in West African

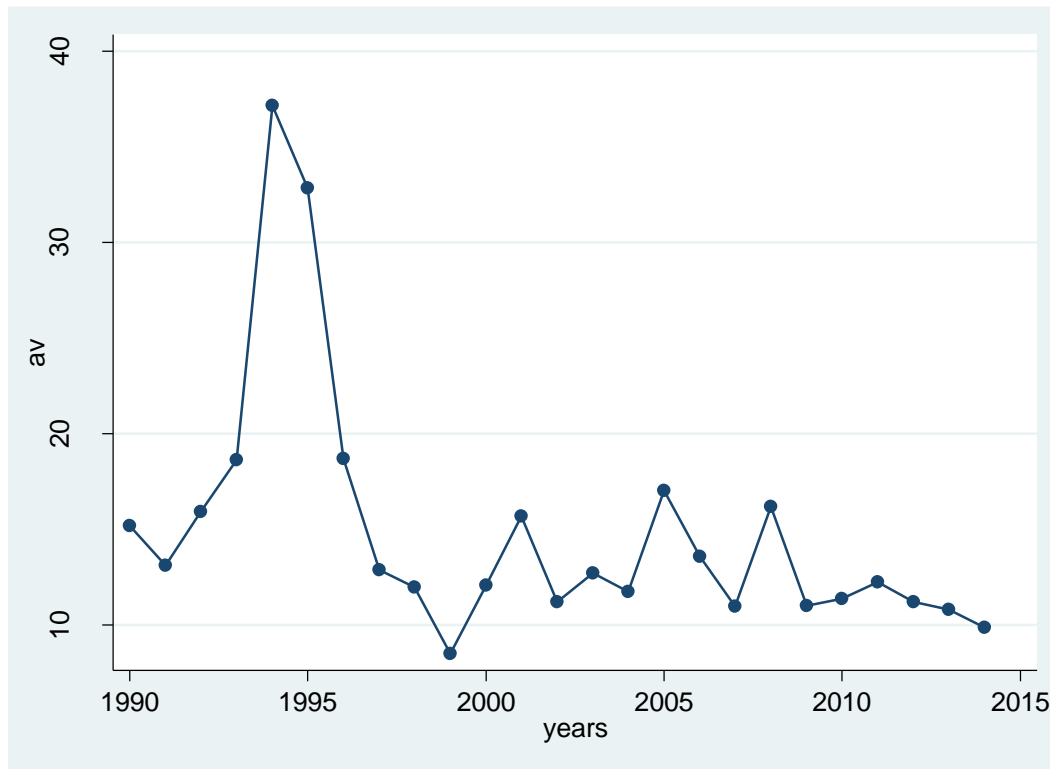
Unlike classic definition of inflation, there is not a similar definition of stagflation. While most economists agree that the United States experienced stagflation in the 1970s, there is not agreement on precise start and end dates to the stagflation(s) that occurred during that time nor about the precise conditions that characterize stagflation. Blinder's (1979) first sentence reads, "*Stagflation* is a term that describes high inflation and high unemployment rate it connotes the simultaneous occurrence of economic *stagnation* and comparatively high rates of *inflation*." Bruno and Sachs' (1985) introduction states, "The period of 'stagflation' (stagnation combined with inflation) broke out with a vengeance during 1973–75." Basically stagflation can be described as a portmanteau of stagnation and inflation, is a situation in which the inflation rate is high, the economic growth rate slows, and unemployment remains steadily high. It raises a dilemma for economic policy, since actions designed to lower inflation may exacerbate unemployment, and vice versa. Keynes did not use the term, but some of his work refers to the conditions that most would recognise as stagflation. In the version of Keynesian macroeconomic theory that was dominant between the end of World War II and the late 1970s, inflation and recession were regarded as mutually exclusive, the relationship between the two being described by the Phillips curve. Stagflation is very costly and difficult to eradicate once it starts, both in social terms and in budget deficits. One economic indicator, the misery index, is derived by the simple addition of the inflation rate to the unemployment rate.

In West Africa stagflation is evident in high rate of inflation accompanied by high unemployment rate. In Benin the slowdown observed since the end of 2011 persisted in 2012, due to economic stagnation around the globe, and in the euro area in particular. Reduced foreign aid and sluggish foreign investment resulted in gross domestic product (GDP) growth dropping from 4% in 2011 to an estimated 2.5% in 2012. The country's lack of natural resources and poor conditions for agriculture make it highly vulnerable to external shocks. The government has therefore been seeking to promote a more balanced economic development. The Third Growth and Poverty Reduction Strategy Paper, adopted in April 2013, reflect the government's attempt to address the country's structural challenges and adapt the country's development model to its new non-Least Developed Country status.

According to the Economic Report on West Africa (2013) Guinea, Nigeria, Niger, Ghana, Togo and Cote d'Ivoire have continued to experience substantial increase in unemployment rate but mild inflation rate since 2010. Several West African countries experienced increased in Gross Domestic Product since 2005 till date but that has not been translated into increase in employment and reduction in unemployment rate. From the misery index in figure 1.0 there is evidence of stagflation in West Africa which was very pronounced in the 90's reaching as high as 38 percent in 1995. In the last decade stagflation have continue to decline

in the sub region such that by 2010 it was 12 percent based on the misery index, 13 percent in 2011, 12 percent in 2012, 11 percent in 2013 and 10 percent in 2014 (see Figure 1.0).

**Figure 2.0 Misery Index for West Africa Sub-Region**



*Source: Computed by Author Based on Data from World Economic Outlook (WEO, 2015)*

Despite this reduction stagflation in West Africa based on the Misery Index is still double digit which shows that the region is still engulf in high inflation and unemployment despite the increase in GDP.

### 3.0 Empirical Review and Theoretical Framework

An appraisal of literatures on stagflation and poverty incidence 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.

Sargsyan, (2013) carried out the threshold effect study in the relationship between inflation, poverty and growth in Armenia from 2000- 2013 using quarterly data estimated using GMM technique. The purpose is to test for a threshold level of inflation at which the effect of inflation on growth changes from negative to positive, as inflation passes that level and also the impact of inflation on poverty rate. The threshold level of inflation is calculated using specific econometric technique as in Khan and Senhadji (2011), which though was primarily used for panel data models, is applicable to time series models as well. The estimation results reveal a 4.5% threshold level. The threshold level of inflation at 4.5% means that this level of inflation is the break-even level of inflation, above which inflation has a negative impact on the growth rate of output. The study also found that inflation has a positive and significant impact on poverty rate. The paper concluded that targeting a level of inflation higher than current but not exceeding calculated threshold level might be beneficial for Armenia.

Lupu (2012) studied the effect of inflation and unemployment on poverty between 1990 and 2011 in the Latin American countries using a Least Square Dummy Variable (LSDV). She argued that Inflation increases poverty in two ways. First, the inflation tax can reduce disposable real income. Second, if nominal wages increase less than the price of goods consumed by wage earners, workers' real income will decline. She found evidence that in Latin America, inflation affected the poor through inflation tax but the effect was very small. Higher rates of inflation had resulted in higher inflation taxes but unless the inflation was extremely high (above 100%) this increase in inflation tax was less than 1%. However, she showed that the main effect of inflation on poverty was manifested through real wages. She found that accelerating inflation reduces real wages and increases poverty. According to her results, real wages fall by 14 percent when inflation doubles. She also concluded that unemployment have a significant impact on poverty incidence Latin America region.

Fielding (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.

Gordon (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 Gordon, 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.

Berthold and Grundler (2013) investigated the empirical determinants of Stagflation in a panel of countries which consisted of developed and developing countries. The variables used were inflation, unemployment and output using Random effect Maximum Likelihood technique to estimate their model. Their results confirm the ambiguity in the influence of supply shock as the major determinant of stagflation.

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.

Sergii, (2011) investigates poverty-growth interaction for Commonwealth of Independent States (CIS) for the period of 2001-2008 using dynamic panel data approach. He is found out that this relation is strictly concave with some threshold level of poverty, which is in line with the previous empirical studies based on earlier sample periods. Poverty rate threshold level is estimated using a non-linear least squares technique, and inference is made applying a bootstrap approach. The main findings are that when poverty level is higher than 8% economic growth is slowed down. The non-linear poverty-growth interaction is quite robust to the estimation method and specification.

Li, (2013) corroborated that high rate of inflation and unemployment causes problems not just for some individuals, but for aggregate economic performance. But less agreement exists about the precise relationship between inflation and economic performance, and the mechanism by which inflation affects economic activity. The study examines the relationship between inflation, unemployment and economic performance by using panel data for 90 developing countries and 28 developed countries over the period 1961-2004 estimated with FEM. The evidence strongly supports the view that the relationship between unemployment

and economic growth is nonlinear. For the developing countries, the data suggested two thresholds relating economic growth and inflation. The first and second threshold levels were estimated to be 14% and 38% respectively. At the rates of inflation lower than those of the first threshold, the effect is obscure and positive; at rates between the two threshold levels, the effect is significant and strongly negative; at extremely high rates the impact diminishes but still significantly negative. For the developed countries, only one significant threshold is detected (24%). At rates below this threshold, inflation has a significantly negative effect on economic growth, while the magnitude diminishes as inflation exceeds this threshold.

Gokal and Hanif, (2014) examines the relationship between Inflation, unemployment and Sustainable Output Performance in the West African Sub-Region. The variables they use were inflation rate, unemployment rate and GDP using panel data estimated using a dynamic panel analysis. They attempted to provide solution to the debate on the nature of the inflation and growth relationship. Thus, it is tested whether a meaningful relationship holds in West Africa case. The tests reveal that a weak negative correlation exists between unemployment and growth but a positive relationship between inflation and growth, while the change in output gap bears significant bearing. A causality test was also conducted and the results show that causality between the three variables runs one-way from GDP growth to inflation to unemployment.

Lupu, (2012) conducts a study on the correlation between unemployment, poverty rate and economic growth in Romania and highlights the existence of interdependence between the phenomena of unemployment and that of the growth process. Preferences on issues of relationship between poverty and economic growth is necessary because its analysis reveals huge potential for development and for the fact that it promotes the transition process in Romania which was the route to efficient functioning of competitive market economy. The research was conducted using ideological and quantitative approach, and the research results show that the relationship can be seen in two ways, one that reflects the negative aspect of the relationship between poverty rate and growth where an increase in poverty incidence reduces output productivity (at high level of unemployment). Over this period of time (1990-2010), unemployment in Romania was oscillating, high, mainly as a consequence of the effects of the delay in the essential restructuring of the economy; the recurrent cessation of the stabilizing efforts; the inadequate wage policy; the expanded financial disorder; the decrease of the domestic output of goods and services. On the other hand, there is the one that reflects the positive aspect of the relationship between the two where stability in unemployment raises output productivity. Over this period of time (2001-2010), unemployment in Romania was reduced drastically to 5.8% in 2009.

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.

### **Theoretical Framework**

The Neoclassical theory of poverty and Stagflation serves as the Theoretical Framework for this study. The neoclassical theory can be used to explain the Stagflation and poverty incidence in West Africa.

The major shift in perspective with respect to neoclassical theory lies in the greater emphasis placed on the *macro* side in liberal theory in comparison with the more *micro* orientation of preceding models. The theory laid emphasis in the promotion of this crucial aspect of human capital which reduces poverty incidence as human capital accumulation creates wealth. Human capital is done through the promotion of human capital accumulation through aggregate investment in public education. The role of the government in the economy therefore takes the centre of the stage in augmenting human capital. It is contended that government intervention against poverty is needed in a wide variety of economic issues, from tackling involuntary unemployment to promoting human capital accumulation and 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.

From the set of macroeconomic variables that Neoclassical stress, aggregate investment, 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).

Economists conceptualise this as an elasticity of poverty to growth of around -2. Put more positively in the case of growth, if 35 percent of households are below the poverty line, then per capita growth of 1 percent is likely to reduce the number in poverty by 2 percent, or from 35 percent to 34.3 percent of total households. Thus, the World Bank finds that "On average, every additional percentage point of growth in average household consumption reduces that share [of people living on less than \$1 a day] by about 2 percent".



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 enrol 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.

Similarly, Reinstadler and Ray (2010) argue that the regional unemployment rate can have a direct and indirect impact on poverty. The first one is straightforward: a higher aggregate unemployment rate increases the likelihood of individual unemployment. The second effect is an indirect effect through the negative impact of the unemployment rate on the wage bargaining power of the employed, who are at higher risk (since they face higher competition) of being fired or receiving a lower wage when the aggregate regional unemployment rate rises. Importantly, they find that the aggregate factors such as regional employment are significant even after controlling for the main individual characteristics influencing the likelihood of being poor. This gives support to the Keynesian emphasis on factors at the macroeconomic level but partly undermines the efficacy of nationwide fiscal policy, implying a need for regionally focused policies (notably public investment) as well.

Notwithstanding the fact that employment is generally perceived as an anti-poverty tool, in practice employment may conceivably cause poverty under some specific circumstances. For example, this could happen whenever the generation of employment is accomplished via the expansion of part-time, low-paid and temporary jobs (that is, insecure and precarious jobs), which may be linked to drastic supply-side, labour market reforms aimed at bringing flexibility to the labour market<sup>48</sup> albeit also linked to technical changes which are reducing the demand for unskilled labour and hence reducing wages for such workers (Machin 2009). Indeed, a process like this took place in Germany during the most recent crisis: despite the reduction in the unemployment rate, poverty has actually increased (Kyzyma, 2013). We also noted at the outset that just over half of the 14 million people in poverty in the UK were from working families. Osterling (2007) also adheres to this view, adding that far-reaching economic restructuring can in some instances become a source of poverty, at least in the short run. Low paid jobs may disincentivise work when there is a sufficient safety net, or if jobs are accepted they may lead to poor health (Pemberton et al 2013).



Inflation especially when the nominal wages on which low earners depend stagnate or grow at a lower rate than prices, inflation can depress workers' real income and generate poverty. This will also be more likely the more the prices of basic goods are affected. Agenor (2002) finds that inflation always increases the poverty rate, using a cross-section of 38 countries. Easterly and Fischer (2000) found that the poor tend to rate inflation as a top concern, using survey data on 31,869 households in 38 countries. On the other hand, the often-cited "inflation tax" reducing the purchasing power of monetary assets may not affect those already below the poverty line, since these individuals hold few liquid balances to begin with (Granville and Mallick, 2006).

Granville and Mallick, (2006) formulated a complete neoclassical model to explain the causes and solutions to poverty using macroeconomic variables such as GDP, Inflation rate, Unemployment rate, Poverty rate (Percentage of population living below 2 USD a day) and government expenditure on human capital development. Their model is given as:

$$Y = f(X_1, X_2, X_3 \text{ and } X_4) \quad (1)$$

Where Y is poverty rate,  $X_1$  is inflation,  $X_2$  is unemployment  $X_3$  GDP and  $X_4$

Government expenditure on human capital development. The model is further expressed as;

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \mu \quad (2)$$

Equation two gives the neoclassical equation on Poverty incidence. To derive the neoclassical equation regarding stagflation, a neoclassical equation based on the neoclassical theory of Stagflation can be derived from the (short-run) Lucas (1978) aggregate supply function. The Lucas approach is very different from that the traditional view. Instead of starting with empirical data, he started with a classical economic model following very simple economic principles. Start with the aggregate supply function:

$$Q = Q_n + \delta(P_t - P_{t-1}) \quad (3)$$

Where Q is actual output,  $\delta$  is a positive constant term,  $P_t$  is current price level and  $P_{t-1}$  is previous price level. Note that this equation indicates a positive relationship between inflation and GDP. This means that in the Lucas aggregate supply curve, the *only* reason why actual real GDP should deviate from potential—and the actual unemployment rate should deviate from the "natural" rate—is because of a rise in price.

Equation (3) can be further expended to incorporate unemployment; there is also a negative relationship between output and unemployment (as expressed by Okun's law). Therefore using

$$Q - Q_n = -\gamma(U - U_n) \quad (4)$$

Where U is unemployment,  $U_n$  is natural unemployment rate and  $\gamma$  is a constant term. Equation (4) can be substituted into equation (3) and it gives

$$Q = \delta(P_t - P_{t-1}) - \gamma(U - U_n) \quad (5)$$

Finally human capital stock is added to the equation, thus

$$Q = \delta(P_t - P_{t-1}) - \gamma(U - U_n) + \tau(K) \quad (6)$$

K is human capital stock and  $\tau$  is the growth of human capital stock, Tobin (1976) calls this the required capital stock that guarantees growth. Hence equation (6) shows that Economic growth depends on inflation, unemployment and capital Stock, with inflation and unemployment representing stagflation.

#### 4.0 METHODOLOGY

##### Model Specification

From the theoretical framework the Neo-classical theory of stagflation and poverty was adopted, this section will focus mainly on establishing a model to examine the causes and effect of stagflation and poverty incidence in West Africa. For the purpose of this research, a structural equation model will be adopted to estimate stagflation and poverty incidence in West Africa.

A model based on Neo-classical theory of stagflation and poverty is adapted from the work of Granville and Mallick, (2006) and extended to incorporate the effect of poverty incidence on economic growth in West Africa. The three stage least square method is used to examine the poverty incidence and stagflation in West Africa. The first and second equation examines the causes of poverty and stagflation in West Africa while the last equation examines the effect of stagflation and poverty level on economic growth.

Conventionally, the first structural equation for the causes of poverty is given as follows;

$$POV = f(STA, GHCD, GDP) \quad (1)$$

Where,

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

STA is stagflation; based on misery index Stagflation can be measured as unemployment rate plus inflation rate, Hence

GHCD is government expenditure on human capital development (expenditure on health + expenditure on education)

GDP is Gross Domestic Product

The second structural equation to capture stagflation in West-Africa is given as follows;

$$STA = f(POV, GDP, GFCF) \quad (2)$$

Where,

GFCF is Gross Fixed Capital Formation representing domestic investment

Equation 3 gives the basis for the last structural equation for the model. The last structural equation is derived from the aggregate supply equation in the theoretical framework.

$$Y = \delta(P_t - P_{t-1}) - \gamma(U - U_n) + \tau(K) \tag{3}$$

Where

Y = Gross Domestic Product (GDP)

U-U<sub>n</sub> = unemployment rate (UR)

P<sub>t</sub>-P<sub>t-1</sub> = Inflation rate (INF)

K = Foreign loan (FL)

Thus from equation 3 we have

$$GDP = f(UN, INF, FL) \tag{4}$$

Adding poverty rate to the control variables, we have

$$GDP = f(UN, INF, FL, POV) \tag{5}$$

Representing unemployment and inflation with stagflation it becomes

$$GDP = f(STA, FL, POV) \tag{6}$$

Equation 2 and 5 are expanded to form the structural equation for this research and these gives;

$$POV_{it} = \alpha_0 + \alpha_1 STA_{it} + \alpha_2 GDP_{it} + \alpha_3 GHCD_{it} + \mu_{1t} \tag{7}$$

$$STA_{it} = \lambda_0 + \lambda_1 POV_{it} + \lambda_2 GDP_{it} + \lambda_3 FL_{it} + \mu_{2t} \tag{8}$$

$$GDP_{it} = \beta_0 + \beta_1 POV_{it} + \beta_2 STA_{it} + \beta_3 GFDCF_{it} + \mu_{3t} \tag{9}$$

$\mu_{1t}$ ,  $\mu_{2t}$  and  $\mu_{3t}$  follows a one way error component (see Baltagi, 2006) such that;

$$\mu_{1t} = \mu_i + v_{it}, \mu_{2t} = \mu_i + v_{it} \text{ and } \mu_{3t} = \mu_i + v_{it}$$

$\alpha_0 - \alpha_4$ ,  $\beta_0 - \beta_4$  are structural parameters

$\mu_{1t}$  and  $\mu_{2t}$  are error term and;

$$\mu_{1t} \sim \text{IID}(0, \sigma_{\mu 1}^2), \mu_{2t} \sim \text{IID}(0, \sigma_{\mu 2}^2)$$

Equation 7, 8 and 9 are just identified and thus the equations can be estimated by any panel structural equation methods. From these structural equations the reduced form equations for the endogenous variables can be derived and is given as;

$$POV_{it} = \gamma_0 + \gamma_1 GFDCF_{it} + \gamma_2 GHCD_{it} + \gamma_3 FL_{it} + w_{1t} \tag{10}$$

$$STA_{it} = \theta_0 + \theta_1 GFDCF_{it} + \theta_2 GHCD_{it} + \theta_3 FL_{it} + w_{1t} \tag{11}$$

$$GDP_{it} = \delta_0 + \delta_1 GFDCF_{it} + \delta_2 FL_{it} + \delta_3 GHCD_{it} + w_{2t} \tag{12}$$

### Stationarity Model

To test for stationarity, the unit root method will be used and will take the form of an Autoregressive model process, with each variable regressed on its own lagged value and a deterministic variable. The model to be adopted is:

$$\Delta y_{it} = \rho y_{i,t-1} + \sum_{L=1}^{p_i} \theta_{iL} \Delta y_{it-L} + \alpha_{mi} d_{mi} + \epsilon_{it} \tag{10}$$

$m = 1, 2, 3$

Where;

y represents all the variables under consideration.

$\rho$  represents the unit root coefficient.

$\Delta$  is the difference operator.

$y_{t-i}$  represents the lagged terms included

$d_{mi}$  represent deterministic variables

$\alpha_{mi}$  represent the coefficient of the deterministic variable

$\varepsilon_{it}$  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.

$H_0 : \rho = 1$  Panels contain unit root (non stationary)

$H_0 : \rho < 1$  Panels does not contain unit root (stationary)

### Data Source

Data collection technique for the research is secondary in nature which consists of longitudinal panel data. The data used are collected from different sources; data for inflation rate, Gross Domestic Product, foreign loan and government human capital expenditure are derived from World Economic Outlook (WEO). Data for Poverty rate is gotten from Open Data Source specifically from Economic Web Institute and World Bank Data. Data for unemployment is sourced from international financial statistics. The web link to download these data from their various sources will be provided in the appendix of this study.

The data collected is made up of seven panel of countries with interval from 1990-2014. Thus each variable consist of 175 observations. The seven countries under investigation form a sample that represents a population consisting of seventeen West African countries.

Six variables are used to carry out empirical analysis and test the hypotheses for this study. Gross Domestic product used in this study is in billion measured in international dollar and converted to purchasing power parity for each panel of countries. Unemployment rate is given as the percentage of labour force not employment. Government Human Capital Expenditure is measured in billion of international dollar and is given as the addition of expenditure on health and expenditure on education (see Todaro and Smith, 2005). Poverty rate is measured as the percentage of total population living below 2 USD a day. Foreign loan is measured in billions of international dollar and given as net external debt. Inflation is measured as percentage index of consumer price index.

### Methods of Data Analysis

To estimate the structural equation model stated earlier, the Three Stage Least Square (3SLS) method will be adopted. 3SLS is a system estimator and system estimators are more efficient than single equation methods such as 2SLS because they use all available information in the system and are consistent in large samples. The error correction three stage least square (EC3SLS) method will be adopted. EC3SLS according to Baltagi and Li, (1996) is asymptotically more efficient than other panel 3SLS such as within three stage least square (W3LS) etc.

The stationarity test (unit root test) will be carried out using the Harris and Tzavalis stationarity test on each variable to test for stationarity. Harris and Tzavalis (1999) test is

more appropriate because of the structure of the panel data used in this study since  $T > N$  that is time interval in greater than number of panel.

However non stationarity in panel data does not usually lead to spurious regression (Im et al. 2003). Some of the distinctive results that are obtained with non-stationary panels are that many test statistics and estimators of interest have normal limiting distributions. This is in contrast to the non-stationary time series literature where the limiting distributions are complicated functionals of Weiner processes. Using panel data, one can avoid the problem of spurious regression (see Kao 1999, and Phillips and Moon 1999). Unlike the single time series spurious regression literature, the panel data spurious regression estimates give a consistent estimate of the true value of the parameter as both  $N$  and  $T$  tend to  $\infty$ . This is because, the panel estimator averages across individuals and the information in the independent cross-section data in the panel leads to a stronger overall signal than the pure time series case (Maddala and Wu 1999 and Choi 2001).

This study is based on large sample size as such large sample statistical test will be use such as chi-square and Z test instead of small sample statistical test such as F test and t test. The robust standard errors will be used to correct for possible heteroscedasticity of the error term variance

#### 4.0 Data Analysis

The result presented are based on Harris and Tzavalis stationarity test on each variable. All results to be analysed are obtained from STATA software statistical packages and R Programming Software. The data used and the results as obtained from STATA and Python and are contained in the appendices.

#### Stationarity Result

**Table 4.1: Unit Root Stationarity Test Using Harris and Tzavalis Test**

Time Series	Harris- Tzavalis Statistics	Critical Value at 5% LOS	P- Value	Stationary Status
GDP	-5.5242	-1.3922	0.0017	I(0)
POV	-3.5263	-2.9620	0.0015	I(0)
UNP	-7.1952	-3.8662	0.0000	I(0)
INF	-8.6112	-5.4581	0.0000	I(0)
GHCD	-4.0681	-2.3349	0.0065	I(0)
FL	-4.0381	-3.3092	0.0065	I(0)

From the Unit root test conducted above using the Harris and Tzavalis unit root test, all the variables are stationary at level at 5% level of significant (LOS). Thus the error correction three stage least squares (EC3SLs) can be carried out since all the variables are all stationary at level. The result of the EC3SLs is presented below

**Table 4.2 Error Correction Three Stage Least Square Result**

Dependent Variable	POV
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Independent Variables	Co-efficient	Standard Error	Z-Statistics	P-Value
GDP	-6.24622	1.776110	-3.516798	0.01931
STA	0.02529	0.001290	19.604651	0.00001
GHCD	-1022.96	837.2071	-1.221872	0.19325
Constant	11824.5	945.7305	12.50303	0.00001
R <sup>2</sup>	0.660975			
Wald Chi-Square	29.46172			
P-Value of Chi-Sq	0.002316			
Dependent Variable	STA			
Independent Variables	Co-efficient	Standard Error	Z-Statistics	P-Value
POV	0.660645	0.009590	6.888344	0.00392
GDP	-0.218568	0.042864	-5.099131	0.00548
FL	-0.022402	0.008275	-2.707331	0.14834
Constant	0.460023	0.098632	4.664011	0.01583
R <sup>2</sup>	0.61097			
Wald Chi-Square	15.9017			
P-Value of Chi-Sq	0.00853			
Dependent Variable	GDP			
Independent Variables	Co-efficient	Standard Error	Z-Statistics	P-Value
POV	-3589.985	1392.158	-5.578720	0.00251
STA	-1384.911	457.0171	-3.030327	0.00942
GFCF	0.001366	0.001114	1.226426	0.49024
Constant	0.111929	0.035809	3.125736	0.00391
R <sup>2</sup>	0.86607			
Wald Chi-Square	43.4902			
P-Value of Chi-Sq	0.00001			

From the result obtained, GDP and GHCD has a negative impact on poverty a unit increase in GDP and GHCD will lead to 6.24622 and 1022.96 decrease in Poverty level respectively. On the contrary a unit increase in STA leads to 0.02529 unit increase in Poverty level. GDP and STA are statistically significant while GHCD is statistically insignificant. R<sup>2</sup> is high and the Model is statistically significant following the wald chi-square test.

Also GDP and FL has a negative impact on Stagflation a unit increase in GDP and FL will lead to 0.218568 and 0.022402 decrease in stagflation respectively. On the contrary a unit increase in POV leads to 0.660645 unit increase in Stagflation. GDP and POV are statistically significant while FL is statistically insignificant. R<sup>2</sup> is high and the Model is statistically significant following the wald chi-square test.

POV and STA has a negative impact on GDP a unit increase in POV and STA will lead to 3589.985 and 1384.911 decrease in GDP respectively. On the contrary a unit increase in GFCF leads to 0.001366 unit increase in GDP. POV and STA are statistically significant while GFCF is statistically insignificant. R<sup>2</sup> is high and the Model is statistically significant following the wald chi-square test.

## 5.0 Conclusion and Policy Recommendations

This study is carried out to empirically examine stagflation and poverty incidence in West-Africa based on the causes, effect and Remedies. The evidences from the econometrics analyses from this study revealed that foreign loans and government expenditure on human capital did not have any impact on poverty level and stagflation in West-Africa hence, it is important for the government in various West-African Countries to ensure that greater attention are given in to the utilization of foreign loans to reduce poverty in the sub-region. Ore funds should be allocated to government expenditure in human capital such as health and education since it has a negative impact on poverty level.

GDP had a significant impact on Stagflation and poverty level in West-Africa thus indigenous government should strive to increase output which will reduce poverty in the sub-region. Also the increase in health expenditure will without doubt translate to the expected health outcome if the process of utilizing the fund allocated to the health sector is properly monitored and its efficiency is ensured.

Furthermore, the empirical results of this study have revealed a negative relationship between stagflation and growth in West-Africa. Effectively, rising stagflation has resulted in low growth within the period under review. Thus, effective policies to control stagflation should be adopted by the government. The first area government should focus on is to create jobs and employ the abundant human and natural resources we have in the production process .Possible factors responsible for the stagflation (high inflation and unemployment rate) in West-Africa include, the overdependence on one sector, the existence of unused labour surplus in West-African economy which has resulted in rigidities in the labour market and in the wage structure of the country and corruption.

Against the backdrop of inflationary threats, it is also recommended that the monetary authorities should moderate its current policy stance, lower interest rates and control the growth of money in order to boost investment and economic growth. This would encourage small scale businesses to emerge in order to reduce the stagflation. The government should also reduce the excessive reliance on the oil industry. There is need for diversification of the economy to other productive sectors using modern technology and in tune with the trend of globalization.

Expenditure management and budget discipline should be taken seriously by indigenous government since the monetary authorities use monetary and fiscal policies measures as tools for combating stagflation and meeting various macroeconomic objectives.

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## REVISITING THE DEBATES ON ECONOMICS METHODOLOGIES: A REVIEW OF SELECTED RESEARCHES IN NIGERIA

Hamzat, Soliu

### Abstract

*Among others, Wile's et.al(2009) attempt at proffering solutions to the age-long criticism against the use of western-type research methodology to solving problems in non-western contexts and Ryen's(2011) findings that there are mismatch between the methodology skills acquired by Ph.D. students in social science in Europe and UK in particular against the need of their respective employers are the motivation for this study. Ph.D. holders in economics are greatly valued as source of inputs to policy by policy makers in Africa's largest economy, Nigeria, but there is only anecdotal evidence about the methodological inclinations of the Ph.D. holders in the country. The objective of the study is to identify how frequent the two main categories of reasoning i.e. inductive and deductive in economics methodologies are deployed in Ph.D. theses and conference proceedings in Ahmadu Bello University Zaria and the Nigerian Economic Society (NES) respectively. The author made use of content analysis method to show that inductive inference dominates research methodology in both case studies and that quantitative methods of analysis is the main methods of achieving inductive inference in the selected case studies. The recommendation of the study is that the postgraduate curricular in Nigerian Universities be made to adequately cover all areas of methodologies and resource persons who specialize in qualitative and those of quantitative methods be encouraged to groom postgraduate students in each of these areas.*

**Key Words:** Methodology Deductive Inductive Researches Quantitative Qualitative

### 1.0 Introduction

Most a times the lay public, especially in developing economies like Nigeria, only grudgingly accepts the explanations offered by economists on real world economic problems without necessarily appreciating the logic underlying them. Meanwhile, little did they (non-economists) know that it is even more common for economists to disagree among themselves over what and how a better solution to any real world economic problem should be obtained (Gordon & Dahl, 2013). The major source of differences among economists over how to obtain a better solution to economic problems or fill a knowledge gap is the difference in the nature of reasoning they often deploy to solving problems (Blaug, 1992 and Hausman, 2008).

Besides, even among those who deploy same type of reasoning, the practical methods of filling knowledge gaps or solving problems may not be the same and so it is common to see that conclusions do differ among economists using same nature of reasoning to fill knowledge gaps or solve problems. The reasoning types are the methodologies (Gray, 2009; Hausman, 2008 and Blaug, 1992) and the practical method of research are quantitative and qualitative in nature (Gray, 2009).

A category of methodologists in economics i.e. the inductivists would reason that whatever knowledge within the confines of economics yet to be manifest could be acquired, subject to some level of probability, by making inference from the observed pattern of behavior on those known (Blaug, 1992). In line with this type of reasoning, these sets of methodologists, like other scientists, would go about collecting information/data on the behavior of man for onward analysis and inference. The debate on a better methodology to doing economics is larger among these categories of economists. For the same economic problem or gap in the literature, the inference process could be done through either numeric/quantitative information and techniques or non-numerical/qualitative information (Newman & Benz, 1998 and White, 2002). Economists often disagree on the validity of the results reached using separate methods of inductive inference (White, 2002). Some believe the outcome from the use of quantitative method is the only genuine outcome due to the rigor associated with it and “objectivity” in the use of numeric information while the other say qualitative method is amenable to real world problems than quantitative methods and that its outcome is more real.

The second major category of methodologists in economics otherwise called the deductivists would reason that knowledge in the confines of economics discipline is a product of some fundamental law supported by initial statement of conditions and that conclusions drawn from the initial statement of condition and the fundamental laws are another words of saying the conclusion (Blaug, 1992). The implication of this is that inferences drawn from premises to conclusion leave no room for probability as it is an exact but only another way of expressing the conclusion. This is otherwise called the deductive inference approach. Both methodologies are important to policy especially wherever research based policies are mostly accorded priority.

No doubt the quality of policies and solutions to real world economic problem in a country like Nigeria depends on the intellectual and research capacity of policy advisers/researchers among other factors (Killick, 1981). However, evidence has shown that there could be mismatch of skills of Ph.D. holders against their job specification. For example, among instance of mismatch, Ryan's (2011) demonstrated that qualitative methodology skills are prevalent among Ph.D. students in social sciences in the UK against the quantitative skills often sought by employers of Ph.D. holders in that country. Therefore, the objective of this study is to identify the extent to which each category of methodologies of economics fared in the researches of Ph.D. students in economics department at the Ahmadu Bello University (A.B.U), Zaria and the Nigerian Economic Society (NES). A.B.U and N.E.S are chosen for fair representation of the two major divide of the country: north and south. A.B.U in the north because it is the oldest degree awarding University in Northern Nigeria and N.E.S in the south because its headquarter is in the oldest University in the South i.e the University of Ibadan.

The study is divided into five sections beginning with this introductory section. Section two is the literature review section where relevant concepts were reviewed and the arguments of the two categories of methodologists were presented. The methodology of the study is presented in section three and section four presents the results of the study, while the last section presents the conclusions and recommendation of the study.

### **Literature Review**

## 2.1 Review of Concepts

### i. CONCEPT OF METHODOLOGY

There are several definitions of what is referred to as methodology. It can be defined as a detailed process and justifications of how a researcher goes about achieving the objective of his study (Berg, 2001). For the purpose of this study, methodology is defined as the principles and basis upon which knowledge about a phenomenon is gleaned or for short the science of finding out (Babbie, 2008).

### ii. CONCEPTS OF DEDUCTION AND INDUCTION

Methodology could be viewed from two basic approaches depending on the type of reasoning deployed in researches (Blaug, 1992; Babbie, 2008; Gray, 2009 and Newman & Benz; 1998). One way of reasoning in research is to have a belief in the truth of some general law, theories or principles and the knowledge from the theory/theories can then be used to explain a particular behavior that is to be explained (Blaug, 1992 ) and this process of gaining knowledge is called deduction. The second way of reasoning in research is to have a belief that a general pattern or regularity i.e. a theory can be established from the observation of particular events or behavior under investigation (Blaug, 1992). The methodology of doing research in the first, deductive, type of reasoning is called deductive methodology and the second, inductive, type of reasoning is called inductive methodology (Newman & Benz; 1998).

The root word ductive is from a Latin verb *ducere* i.e. to draw on or along, to pull or drag while the prefix *de* in the case of deductive means in and from. Therefore, arguments drawn from laws, rules and other generally accepted principles, say theory, are expressed deductively and examples of this is the neoclassical theory of consumer behavior (Blaug, 1992 and (Johnson, 1996 among several others). In other words, deductive methodology begins from a universal view of a situation, say a theory, and works back to a particular instance (Gray, 2009 and Babbie, 2008).

Deductive methodology is also often referred to as objectivists (Gray, 2009 among others) or sometimes as positivists methodology (Vanderstoep and Johnston, 2009) because it is a methodology that holds an observation objectively regardless of the perception of the investigator (Gray, 2009). Its aim is to measure and analyze behavior within the value-free framework (Newman & Benz; 1998).

Deductive methodology could be used to gain knowledge through *inference*. However, traditional deductive inference is concerned about *proof* and *disproofs* whereby the conclusions of arguments are drawn from its premises in such a way that if the premises are true the conclusion must be true (Zellner, 2007) and there are no room for statement that the proposition or claims of the theory are probably true. Instead the claims of theory in deductive methodology are said to be absolutely true. Besides, deductive inference cannot be used to make choices among competing propositions that are equally true (Zellner, 2007).

Inductive methodology builds theories by making inference or some sort of generalization from the properties or behavior that have been observed to those of other similar behaviours that are yet to be observed ( Babbie, 2008; Vanderstoep and Johnston, 2009). A famous example of this in the literature is the case of the white swan. All the swans we have seen are white in colour therefore we could generalize the idea of the colour of swans to be white.

Meanwhile scholars (Gray, 2009) that believe that the social context of an observer or investigator is important for a fair appreciation of the meanings of what is observed make use of inductive methodology to gain knowledge in and of the world (Vanderstoep and Johnston, 2009; Babbie, 2008). Hence the inductive methodology is called the interpretivists or constructivists methodology because reality or what holds in the real world is constructed from the view point of an investigator and the interpretation of what holds in reality is made by the investigator (Babbie, 2008).

The inductive methodology is sometimes referred to as the qualitative methodology because most times the observation and views of an investigator is in literal or verbal words and not in numerals that could be subjected to analysis in the same way natural numbers would (Vanderstoep and Johnston, 2009). This is, however, not to say some literal/verbal observation are not sometimes converted to numerals through coding or other methods (Babbie, 2008) thereby subjecting them to quantitative methods.

### iii. *CONCEPTS OF INFERENCE*

*Inference* means logical reasoning (Kostecki, 2012) A sets of intuitive reasoning procedure that moves logically from premise(s) to a conclusion in such a way that the information contained in the premises are found to support the conclusions reached (King, Keohane, & Verba, 1994).

### iv. *CONCEPTS OF DEDUCTIVE INFERENCE*

Deductive inference is the sets of statements whose conclusions subsist from the premises with certainty. In other words, any sets of premises and a conclusion otherwise called arguments that are certain to be true by definitions are referred to as deductive inference and usually no empirical evidence are required for the proof of deductive inference (Blaug, 1992). An example of deductive inference is shown in the following famous *arguments* of consumer behavior in microeconomics “the allocation of ones salary among competing goods and services with no amount remaining in a given month such that the ratio of marginal utility and prices of each is equal for all the goods and services is the indication of equilibrium in the allocation of the salary of that month among the competing goods and services”. The conclusion “... the indication of equilibrium in the allocation of salary of that month among the competing goods and services” is absolutely without any iota of probability derived from the premises which says “the allocation of ones salary among competing goods and services with no amount remaining in a given month such that the ratio of marginal utility and prices of each is equal for all the goods and services”. This argument is often referred to as the



*equal marginal principle* in consumer behavior is a typical example of deductive inference (Pindyck & Rubinfeld, 2009).

Another example of the deductive inference is the famous argument in the theory of market structure in microeconomics which says “whenever a market for any commodity is perfectly competitive, the price offered in the market by any producer of commodity is equal to that of other producers of same commodity”. The conclusion “... the price offered in the market by any producer of commodity is equal to that of other producers of same commodity” is derived absolute without any iota of probability from the premises which says “whenever a market for any commodity is perfectly competitive”. In other words, it is certain that when the premise holds, the conclusion must also hold. In another language, the conclusion holds because the premise(s) exist (Pindyck & Rubinfeld, 2009).

#### v. *CONCEPTS OF INDUCTIVE INFERENCE*

Inductive inference is, to a certain degree, like deductive inference where the conclusion is derived from the premises. However, for the case of inductive inference, the statement of the conclusion is true only to a certain degree and not with absolute certainty (King et al ,1994, Johnson, 1996 ). In other words, inductive inference is a way of extending deductive inference to cases of less than certainty in their conclusions (Kostecki, 2012 and Thilly, 1903). Usually, the truth of the conclusion is often associated with some degree of probability to indicate that it is not certain that the conclusion must subsist from the premises. An example of inductive inference can be found in the argument of the theory of demand that “ the quantity demanded of a commodity has increased by five percent during the past year this therefore means the price of the commodity has fallen by one percent ”. The conclusion which says “... therefore means the price of the commodity has fallen by one per cent” is not an absolutely derivation of the premises because some other factors could be responsible for the increase in the quantity demanded of the commodity like change in the income or taste of the consumer, technological advancement on the importance of the commodity etc. Therefore, the conclusion is only probably true.

The argument making up the theory could alternatively be expressed in terms of the probability that it will occur. For example, it could be expressed as “the quantity demanded of a commodity has increased during the past year by five percent this therefore means there is 90 percent probability that the price of the commodity has fallen by one per cent”.

How then is the likelihood of occurrences of conclusions in inductive inferences obtained? They could be determined based on the experiences and expert knowledge obtained from interviewing participants in a study through in-depth interviews, focus group discussions and other non-numerate analysis or objectively computed by taking pasts information of same variables into consideration like in time series studies in econometrics (Zellner, 2007). Econometrics is the art and science of combining economics theory, statistics, probability theories and mathematics to measure economic data as well as indicate the likelihood i.e. probability of conclusions in inductive inferences like the one in the preceding paragraph.

## 2.2. **Review of the Arguments**



The debates on the methodology of economics as a social science discipline are mainly dual pronged; one is whether deductive approach is the valid approach to undertaking scientific research or inductive approach is (Hausman, 2008) and the second is concerned with the valid approach to doing inductive inferences. There are two broad views on the valid approach to doing inductive inferences, the qualitative and the quantitative approach (White, 2002; Gray 2009 and Babbie, 2008). While the debates between deductive and inductive approach started several centuries ago, that between qualitative and quantitative method became more forceful from 1980 (Newman & Benz, 1998 and Howe, 1998 among others). Though a sub issue with regards to quantitative method in economics, the debate on overdependence on econometrics as the quantitative method of economics has also been waging on strongly for some time now (Pinto, 2011). While other social science disciplines share the debate between deductive and inductive approach almost evenly, economics is at the fore fronts of the debate between proponents of qualitative and quantitative method (White, 2002).

### 2.2.1 ARGUMENTS OF THE DEDUCTIVISTS

The scholars who started the debate on how knowledge in any discipline could be obtained were Greek *skeptic* proponents and their idea is support of deductive approach. Pyrrho's (C. 365-275 BC) who was known through his followers Timon of Philius (320 BC – c. 230 BC) and Sextus Empiricus (160-210 AD) was the forerunner of the idea (Keuzenkamp H. A., 2000). The view of the proponents of deductive methodology during this period was that valid or logically acceptable knowledge whose proof is demonstrable can only be obtained through deduction. They added that inductive approach is an invalid approach to obtaining knowledge because it rests on perception and that knowledge obtained from perception cannot stand the proof of deductive reasoning (Keuzenkamp, 2000).

In addition, Hume (1748) presented a more logical view against inductive approach saying no part or function of any objects/observation in itself can warrant drawing a conclusion beyond itself and that even after the observation of frequent or constant events there is no reason to draw any inference beyond the observation. The consensus among deductive proponents about Hume's view is, for example, that as long as there is no evidence to show that there is something in the anatomy and physiology of swans that produces white colour for swans, the argument in the tradition of inductive approach (enumerative induction in particular) that all swans are white because all the swans we have seen are white is unwarranted and not valid.

The bottom line of the deductive view is that for any argument to be valid, its conclusions must be drawn from its premises without any doubt and that this can be achieved if there is a fundamental law in the premises which says what the conclusion of the argument is saying in other words. As long as such laws or principles does not exist, the conclusion cannot be said to be logically drawn from the premises and neither the frequency nor constancy of the occurrence of the premises can replace a fundamental law or principle upon which the conclusion should be warranted.

The above position of the proponents of deductive methodology is a product of the belief that reality or truth about human behavior is single and it exists regardless of the existence of its observer's interpretation (Gray, 2009). In other words, the belief and knowledge about reality i.e. the *ontology* and *epistemology* inherent in deductive methodology are that reality is single and its nature is independent of its investigator(s) (Sale, Lohfeld, & Brazil, 2002). It follows that the fundamental law/principles required in a premises for a warranted conclusion to be derived from it in deductive methodology is an objective single reality and does not depend on the interpretation of investigator(s) or participants in a study (Sale et al, 2002 and Gray, 2009).

### 2.2.3 ARGUMENTS OF THE INDUCTIVISTS

The proponents (Thilly, 1903) of inductive inference rely on *the principle of uniformity of nature* or *the principle of identity* to argue that valid probable inference could be made on objects/events or behavior not actually experienced but inferred from those experienced. The principle of uniformity of nature is that what were ones true will always be true; whatever is, will remain so in nature (Thilly, 1903).

The argument of the inductivists is that all the fundamental principle or law claimed to underpin deductive inferences are products of social agreement and that no objects, events or observation that could be take a value or meaning outside the contextual environment of its existence (Gray, 2009). They also argue that theories or fundamental laws/principles that deductive inferences lay out are products of shared introspection and introspections are often due to experiences over a long period of time (Hausman, 2008). For example, there is nothing in the taste bud of a human being that can be said to be responsible for the decrease in marginal utility of man as he/she consume more of ice cream or any other commodity that warrant the decrease in the satisfaction he/she derives from the consumption of addition unit. Instead, it is the regularity observed in the decrease in his/her desire for more of such commodity as his/her consumption increases that warrant the principle that there is diminishing return to marginal utility. Otherwise called *common sensible*, the basic and common observation on the behavior of man from centuries of observations of his wishes and aspirations like his pleasure seeking and pain avoiding behavior are the basis of the theories or fundamental principles underlying theoretical economics and this are usually formulated through deductive inferences (Tye, 2002).

On the bases of these, the inductivists (Zellner, 2007 and Thilly, 1903 among others) argue that all forms of inference making are inductive in nature but that the difference is in the degree of its likelihood of validity. Therefore, perfect and imperfect inductive are the only forms of inductive inferences but because inductive inferences should not be described as being perfect is the reason it is dubbed deductive inference (Zellner, 2007 and Thilly, 1903). In other words, whenever the conclusion of an argument is same as its premises, an introspective idea expressed in other words, and then the likelihood of the validity of the argument is perfect i.e. perfect induction inference (Zellner, 2007 and Thilly, 1903). It is the same as what is conventionally referred to as deductive inference. However, anything short of a conclusion being only another words of saying the premises in an inference the result is an inductive inference with its associated likelihood i.e. probability of validity. As long as a

determinable, qualitatively/ quantitatively, likelihood of the validity of an argument is indicated the *logic* of inference in such argument is said to be deductive in nature. At 100 per cent likelihood of validity the inference in the argument is a deduction otherwise it is a varying degree of inductive inference (Zellner, 2007).

#### 2.2.4 QUALITATIVE-QUALITATIVE DICHOTOMY

The debates on the valid methods of making inductive inference in economics is also large in the literature and it is mainly between the qualitative and quantitative proponents of valid methods of making inductive inference and a few whose view is that both methods could be combined (Newman & Benz, 1998 ).

The quantitative proponents are of the view that logic of inference often use in inductive inferences require that an objective measure of observations through quantitative analysis and the likelihood of the validity of arguments in economics be established if an argument is to be considered valid (White, 2002). Besides, the tradition that claims of theories are to be tested to acquire knowledge makes it easy for hypothesis testing to be the order of the day among economists who have some level of familiarity with some of the techniques in statistics and mathematics or for that matter among statisticians who needed to do applied works through the tools they acquired in their own discipline (Gray, 2009).

Another important argument of the quantitative Methodists in economics is that there is need for apt rigour in making inference based on behaviors that are observed to those not actually observed in a complex world as the type we live in today. Qualitative method do not offer the amount of rigor that can match the complexity of the world, they often agree (White, 2002; Newman & Benz, 1998).

On the other hand, the proponents of qualitative methods argue that numerical value and statistical methods are not amenable to having a fair grasp of the complexities in human behavior Except evidence/observations that can be easily aggregated or whose averages can be easily taken, most of other aspect of human behavior that are mostly peculiar to local contexts are not amenable to quantitative methods in inductive inference because attempts to do so will result in the loss of valuable evidence where the truth of premises will be a subject of doubt and the conclusion will not be validly inferred from the premises (Babbie, 2008).

The qualitative Methodists posit that unlike physical objects human behavior is dynamic and complex that no single metric can be fair in capturing the details of the nuances for the purpose of making any valid inference (Babbie, 2008). No doubt some quantitative proponents further argue that perceptions about human behavior could be quantified using commonly shared method of indices for onward quantitative analysis. However, qualitative proponents (Bruce, 2001 and Babbie, 2008) replied that most at times such indices do not sufficiently capture the details and complexities involved in human behavior. Besides, the dynamic nature of human behavior easily makes such shared method of indices obsolete even before they are applied (Newman & Benz, 1998).

Several scholars (Newman & Benz 1998) have argued that the debate in favour of qualitative method of inference is not an admittance of subjectivity in the art and science of inference making. As a matter of fact, for a qualitative method to make a valid inference it must be seen to be objective in its approach otherwise it would not have met the minimum criteria for inductive inference. Bewley (2002) among others did an expository analysis of how qualitative approach could be used make inductive inference in economics. The technique of analysis in qualitative methodology are in-depth interview, ethnographic method, focus group discussions and small sample of articulate respondents are often used and the data are analysed by making sense of text, images etc. (Babbie, 2008).

While a dichotomous picture is painted with regards to inductive-deductive approach or and quantitative-qualitative inference methods mainly by the proponents of each, a number of contributions (White, 2002; Ercikan & Roth, 2006; Newman & Benz 1998 and Berg, 2001) have shown that there is really no dichotomy with regards to method of inductive inference and neither is there any in the methodology of valid inquiry in economics and other social sciences in general. Newman & Benz (1998) and Berg (2001) used different *schemas* to show how both methodology of inquiry are only but a conversation in a continuum without any wall of barrier between them. The explanation by Newman & Benz (1998) and Gray (2009) among other is that while qualitative method is theory building the quantitative method is theory/hypothesis testing and that whatever theory built through qualitative methods are subjected to testing by the quantitative method after which further theory will be built from the conclusions reached after the test of hypothesis.

Alluding to the famous *Grounded Theory* method by Glaser & Strauss (1967), Newman & Benz (1998) *schema's* indicate that inductive inference method make use of information from particular instances/observations to build theory through qualitative methods like in-depth interview, focus group discussions, ethnographic method, qualitative content analysis, Conversation Analysis, Concept Mapping among others. The quantitative methods raised hypothesis from the theories built through the qualitative methods and make use of some quantitative techniques to test such hypothesis. In a way qualitative methods assist in capturing and establishing behavioral relationship within the ambit of science and the quantitative methods are used to confirm what was captured and raised further raised questions on the behavioral relationships on the subject matter of economics for capturing within the fold of science. Newman & Benz (1998) therefore described the relationship between deductive and inductive methodology on one hand and the qualitative and quantitative methods of inference on the other as an interactive continuum.

### 2.2.5 EVIDENCES OF THE ABUSES OF QUANTITATIVE METHODS/ECONOMETRICS

A number of studies (Ioannidis, 2005 and Pinto, 2011 among others) have raised alleging concern about the abuse of quantitative methods of inference in applied economics. In the past half century, the use of econometrics as a technique of inductive inference burgeoned in economics literature to the extent that is now almost a common knowledge that quantitative

method of inference in economics is mainly done through econometrics (Ioannidis and Doucouliagos, 2013). For example, Pinto (2011) has shown the challenges with overreliance on econometrics as the quantitative methods of inference in economics. The first is that it is now common to find contributors in economic literatures playing the politics of getting published by doing data mining not instead of data analysis so as to ensure the coefficients of their estimates are significant at the conventional 1, 5 or 10 percent level of significance while ensuring the goodness of fit of their data indicated by adjusted r-squared is higher at over 90 per cent because most article reviewers prefer to recommend articles with significant results and good fit for publications in journals (Pinto, 2011; Ioannidis, 2005; Ioannidis & Doucouliagos, 2013; and Keuzenkamp & Magnus, 1995). Stanley, Doucouliagos, & Jarrel (2008) made use of the Meta-regression analysis (MRA) technique to give the evidence of publication selection bias in applied econometrics works in the literature.

Secondly, economists now deploy sophisticated macro-econometrics scenario methods whose significance and relevance belie the complexity of its structure (Zellner, 2007). In other words, such methods no matter how sophisticated it is cannot be used as a basis for review theory in economics (Zellner, 2007) it is at best a means of drawing a local inference. Besides, the statistical significance in the estimation of econometrics models are most a times taken and interpreted as economic significance and many applied econometrics studies confuse both in a way that the conclusions of such works lack practical significance (Ioannidis, 2005). This is because many applied econometricians are not aware of the basic philosophy of the concepts of "statistical significance" which was used first by Edgeworth (1885) cited in (Baird, 1988) to show that whenever p-value is above 10 per cent it means either something very uncommon has happened or the null hypothesis is wrong and should be rejected (Keuzenkamp and Magnus, 1995). Instead of considering both options in the interpretations of results of estimations, many authors in applied econometrics focused on the latter thereby making them to do some unethical practices like data mine to ensure significant results are obtained (Ioannidis and Doucouliagos, 2013).

### **3.0 Methodology**

This section outlines and discusses how the objective of the study is to be achieved. The nature, sources and instruments of data collection to the study are indicated in this section. The methods of analysis are also clearly spelt out in this section.

#### **3.1 Nature and Sources of Data**

Similar to the works of Leontief (1982) and Morgan's (1988), the secondary data used in the present study are the words used in crafting the main objective and the methodology chapter/section of the Ph.D. theses approved by economics department Ahmadu Bello University Zaria from inception in 1983 to the present 2015 and those of selected papers of the annual conferences of the Nigerian Economic Society (NES). Ph.D. thesis is a partial requirement for earning the Ph.D. degree in economics in the University. Like all other Universities in Nigeria, it is the highest level of academic research required to earn the highest degree in Ahmadu Bello University Zaria. The units of analyses are the paragraphs

indicating the research objective and the method of analysis employed both the Ph.D. theses and selected papers of NES.

### **3.2 Sampling Technique and Size**

The sampling technique used in the study are both the probability and non-probability sampling technique. Availability sampling technique was used to sample the Ph.D. thesis. All the copies of the available Ph.D. theses in the library of the department of economics, Ahmadu Bello University Zaria on 29<sup>th</sup> April 2015 were examined. The records of the library on the Ph.D. theses that had so far been produced by students in the department since inception of the programme are not comprehensive. Meanwhile, the available number of Ph.D. theses in the department library was 22 as at 29<sup>th</sup> April, 2015 when the present author sampled them. All the 22 PhD theses available on same day were examined.

Also, multistage sampling technique was used to sample the articles in the 2010 NES preceding as a random selection of the selected papers in the 2010 Annual Conference of the Nigerian Economic Society (N.E.S) was made out of the entire collections of the papers selected from papers presented in N.E.S conferences since the inception of its annual seminal in 1958 and all the articles in the preceding were purposively sampled. One conference year was chosen to keep the analysis simple.

### **3.3 Method of Data Collation**

Two independent assessors i.e. research assistants who are postgraduate students in economics department, A.B.U were engaged in collating the secondary data through the reading of the units of analysis i.e. research objective and the methodology sections of both the Ph.D. theses and the N.E.S papers for the following purposes:

- i. coding the verbs, i.e. “analyze”, “develop”, “evaluate”, “investigate” etc. used in stating the main objective of the study as shown in table 1.0 , 2.0 and 3.0 in the appendix
- ii. Identifying the methodology i.e. inductive, deductive or historicism in each of the Ph.D. theses and the selected NES papers. For the purpose of this study, inductive and deductive methodologies are as indicated above under conceptualization.

### **3.4 Methods of Analysis.**

Content analysis is the method of analysis employed in the study. This method is employed because the subject matter of the study is on the analysis of the type of methodologies used in the researches of scholars and the unit of analysis is the words used in crafting the methodologies of these works. Leontief (1982) and Morgan (1988) used the same method in their respective works of similar nature.

## **4.0 Results and Discussions**

### **4.1 Results of Analysis**



The results of the study show that the inductive methodology dominates researches both for Ph.D. and academic conference articles by economists/authors in the selected researches Nigeria. Meanwhile, the main objective of most of the studies is mainly impact evaluation/assessment or cause effect empirical analysis and so most of the objective read thus "...to evaluate the impact of ...", "...to analyze..." and so on.

For the Ph.D. theses in particular, the results shown in table 3.0 in the appendix shows that 87 per cent (20 out of 23) of the theses made use of inductive inference and in particular quantitative methods of analysis. The methods of analysis of the remaining 13 per cent of the theses are a combination of quantitative and qualitative methods suggesting that quantitative inductive analysis dominates the methodology chapter of PhD theses in the selected case. The results of the study also indicate that all the Ph.D. theses whose main objective is an impact study were strictly done through quantitative methods and others whose objectives are either to analyze, examine or investigates one issue or the other are done through qualitative or quantitative methods.

The results of the analysis also indicate that 92 per cent of the selected journal articles made use of inductive methodology and the remaining 8 per cent deductive methodology. Except one case, quantitative methods were used in all theses using the inductive methodology. Again, regression analysis is the only method of analysis deployed by authors of the journal articles selected for analysis.

#### **4.2 Discussion of the Results**

The result of the present study which indicate that the inductive methodology and in particular quantitative methods of analysis is the major methodology in Ph.D. theses and journal articles is similar to that of Stanley, Doucouliagos, & Jarrell (2008) which not only confirm similar results but also offers reasons for the wide use of the inductive methodology by students and scholars. These works showed evidence of selection bias by several editors of journal articles in favour of articles with "significant effects/impacts" against those with "insignificant effects or impacts". Stanley et.al (2008) therefore explained that many authors or students prefer to use the inductive methodology and quantitative methods of analysis because works based on them are easily published as editors are biased in favour of hypotheses testing papers. Besides, promotions, pays and incentives are tied to number of published articles in the academia where most of the authors earn their living and so there is incentive to use quantitative inference to research. Meanwhile, Ioannidis, (2005) had offered similar explanation about the frequency of the use of inductive methodology and in particular quantitative methods in studies against qualitative methods.

Again, the results of the present study confirm those of the pioneering works (Lieontief (1982) and Morgan (1988)) that were based on case studies from a US based journal, the AER. Although the former showed that most articles in the journal were initially based on the deductive methodology but later evidence in the same journal showed that the inductive methodology was relatively increasing. However, the results is at variance with Ryen (2011) which show that the qualitative methods of analysis is prevalently used by Ph.D. students in



social sciences in the United Kingdom despite that most of their employers prefer they have quantitative skills.

## **5.0 Conclusions and Recommendations**

### **5.1 Conclusions and Policy Implications of the Study.**

The conclusion of the study is that students in economics department in A.B.U Zaria and authors of journal articles in the selected papers in the NES conferences often make use of the inductive methodology than the deductive methodology and that quantitative methods of regression analysis is the main methods of analysis used by almost all of them. Also, regression analysis in econometrics has come to be seen as the methodology for earning degrees and promotions in economics discipline. The policy implication of the finding is that the curricular of economics departments in Nigerian Universities are to be made to adequately feature modules on qualitative methods of analysis and students be made to acquire skills in doing qualitative methods because not all real world research problems can be solved through quantitative methods and neither is econometrics amenable to all research problems.

### **5.2 Recommendations of the Study.**

The main recommendation of this present study is that department of economics in Nigerian Universities and professional bodies for economies like the NES should encourage researches that make use of qualitative methodology in the same way it encourages quantitative methodology for inductive inferences. The modalities of achieving this is by deepening the knowledge of post graduates students in qualitative research methods through lectures, assignments and colloquia in the same way it is done for quantitative methods of inductive inferences. Besides, information on who specializes in what methods of research should be shared among members of PhD supervisors' board in department of economics in Nigerian Universities to encourage collaboration and cooperation in the supervision of PhD students. This is also to enable students acquire the capacity to use both methods thereby make postgraduate students be in a better position to carry on researches in Ph.D. theses.

Professional bodies for economics like NES and public research institute like National Institute of Social and Economic Research (NISER) should call for articles that equally encourage the use of both quantitative and qualitative methods of inductive inference. This is to enable professional economics get committed to solving real world and not just academic problems.

The second recommendation is that instead of allowing students to only consume theories obtained through deductive reasoning all through their training (B.Sc. to Ph.D.) in economics, they should be encouraged to produce some also in their respective researches. The modality to achieving this is by using lectures, assignments and colloquia in such a way that students are made to deduce hypothesis/theories from residual knowledge of the economy/human behavior.

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## EXCHANGE RATE PASS-THROUGH, MONETARY POLICY AND DOMESTIC PRICES IN NIGERIA (1990-2015)

*Auta, Elisha Menson & Peter Adamu & Ruth Chenbap*

*Economics Department, Faculty of Social & Management Sciences, Kaduna State University,  
Kaduna: [autaelisham@gmail.com](mailto:autaelisham@gmail.com)*

### **ABSTRACT**

*This paper examines exchange rate pass-through and monetary policy on inflation in Nigeria covering the period 1990-2015 using Vector Autoregressive (VAR) model. The degree of exchange rate pass-through was estimated using variance decomposition and impulse response from the VAR. The series used were found to be stationary after first difference. We found long run relationship among the variables. The empirical evidence suggests that exchange rate pass-through to consumer prices in Nigeria is substantial unlike in the case of the consumer price index. The study suggests that the government should be more proactive in their drive towards diversification of the revenue base of the Nigerian economy. Developing the manufacturing sector is important in order to reduce importation of both capital and consumer goods. More appropriate and strategic exchange rate management in particular and monetary policy management in general is necessary.*

**Key words:** *Exchange rate pass-through, monetary policy, domestic prices, Vector Autoregressive model*

### **1.0 Introduction**

Exchange rate policy plays a central role in domestic and international competitiveness of economies around the world especially developing and emerging countries that are import dependent. The purchasing power of households largely depends on prices of goods and services. When an economy experience high exchange rate, the value of its currency declines with likely implication of exchange rate hike been passed to the consumer. However, Charles, Simon & Daniel (2008) observed that the rate of exchange rate pass through to consumers depends on the quality of the imported good, price elasticity of demand, degree of openness, monetary policy direction of the central bank, stock market volatility among others.

In most emerging-market and developing countries, financial markets are increasingly linked. Many of the countries have adopted floating exchange rates and eliminated capital controls. This exposes them to speculative pressures, contagion and easily reversible capital flows (Shintani, Akiko & Tomoyoshi, 2013; Michael, Elke, Marcelo, 2007). Monetary policy-makers in small open economies may face challenges with greater imported inflationary pressures and exchange rate volatility (Leigh & Rossi, 2002). Understanding the nature of the adjustment of aggregate import prices to exchange rate changes (where import prices eventually influence aggregate domestic prices) is important for anticipating inflationary developments and hence monetary policy responses.

In Nigeria like other developing economies, the study of the exchange rate pass-through on consumers of consumable and capital goods is of particular importance considering the recent development in exchange rate management. Nigerian economy is largely external sector driven and shocks from global commodity market have implications on both consumers and consumers. For instance an increase in price of foreign raw materials or scarcity of key foreign import of the production sector will immediately reflect in the exchange rate pass-through to the manufacturer. Similarly, distortions in supply of consumer goods particularly stable food items or household items in the foreign market are a signal of high exchange rate pass-through to the country's consumers. Secondly, the need to stabilize Naira and make it formidable so as to compete with other currencies in the international markets. Also, there is need to make the external sector of the economy competitive through appropriate exchange rate adjustment which can only be achieved by empirical analysis of the effect of exchange rate pass-through on domestic prices. The monetary authority requires guided policies on exchange rate stabilization as it affects the producers for exporters, wholesale exporters and importers. The consumer of foreign goods also needs to factor in the effect of foreign exchange rate in their choices and demand.

Therefore, the purpose of this paper is to examine the impact of exchange rate pass-through and import prices on producer prices and consumer prices in Nigeria. To achieve this, the paper is structured into five sections. Section one is introduction. Section two is literature review. Section three highlights the methodology of the paper. Section four is empirical analysis. While section five is concludes and proffers some recommendations based on our findings.

## **2.0 Literature Review**

### **2.1 Conceptual and Theoretical Review**

Exchange rate is the price of one country's currency expressed in terms of some other currency. It determines the relative prices of domestic and foreign goods, as well as the strength of external sector participation in the international trade (Raphael & Thomas, 2009). The concept of Exchange-rate pass-through refers to the degree to which a country's domestic prices change in response to a change in its exchange rate (Zhang, 2008). This concept has a great theoretical and practical importance for economic policy in a context influenced by external openness. The exchange rate pass-through determine the choices made in terms of monetary and exchange rate policies which impact on the adjustment instruments used to address imbalances in the external account of a given country.

The external openness in both commercial and financial dimensions is an inevitable option for any economic development strategy set by developing and emerging countries in a globalized economy. The degree of openness imposes constraints on macroeconomic management including monetary and exchange policies. These constraints have been the focus of theoretical controversies between Mundell and Fleming construction related to the impossible trinity and the "fear of floating" (Calvo and Reinhart, 2002).

Mundell and Fleming construction consists of the impossible achievement by a country of three objectives simultaneously, that is, having a fixed exchange rate, the free movement of

capital and the autonomy in conducting monetary policy. The adaptation of this construction to the reality of developing and emerging countries inevitably lead to the choice of a flexible exchange rate policy for countries that wish to maintain the autonomy of monetary policy in the context of capital mobility (Zhang, 2008; Romer, 1993). However, the “fear of floating” thesis questions the possibility to keep the autonomy of monetary policy through the introduction of a flexible exchange rate regime since the “pass-through” effect cancels for small and emerging economies, the supposed advantage of flexibility in terms of monetary policy autonomy. Indeed, the balance of the currency market, which is enabled by the flexibility and its effect on the autonomy of monetary policy is replaced by another type of autonomy loss consisting of the reduction of the link between money and prices, to the extent that the “pass-through” effect tends to be strongest in developing and small economies in general given its positive correlation with the degree of openness and the size of these economies (Ghosh & Rajan, 2007; Krugman, 1987).

The discussions on pass through (Omar, El-Lahlem & Houaria, 2015; Nidhaledchi, 2013; Raphael & Thomas 2009; Takhtamanova, 2008) have shown broad implication for the conduct of monetary policy, macroeconomic stability, international transmission of shocks and efforts to contain large imbalances in trade and international capital flow. It hinges on the issue of the prevalence of producer-currency pricing versus local currency pricing of imports and on whether exchange rate pass-through rates are endogenous to a country’s monetary performance or not. Low import price pass-through means that nominal exchange rate fluctuations may lead to lower expenditure switching effects of domestic’s monetary policy. According to Jose & Londa (2004) countries with low exchange rate and inflation variability are likely to have lower rates of pass-through of exchange rates into import prices.

Lafleche (1996) showed a schematic view of the direct and the indirect channels of exchange rate pass-through. The direct channel, which works through import price affects price of imported intermediate goods. The indirect channel works through high demand for substitute goods or making export more competitive. At the end, exchange rate pass-through is expected to be incomplete in the short term and complete in the long term as both import and consumer prices adjust to exchange rate depreciation. The incomplete exchange rate pass through means that the change in the exchange rate of a given country is not transmitted with the same amplitude to internal prices. The incomplete transmission of exchange rate variations to domestic prices depends on the level of development and the country size. The exchange rate pass-through tends to be greater in relatively small low-income economies that are more open with a high share of tradable goods, high import content and limited domestic substitutes (Ihing, Marnass & Rothenberg, 2006).

In addition to the size factor, exchange rate pass-through to internal prices depends within the same category of countries on other microeconomic and macroeconomic factors. The microeconomic factors are exchange rates (the duration of exchange rate changes, the size of exchange rate changes and the management of exchange rate changes), nature of the products constituting the foreign trade of a given country (Taylor, 2000; Canetti & Green, 1998). The primary products as it stands in both international and domestic markets is often less competitive. As a result, exporters are less responsive to changes in the value of the exchange rate. Exchange rate changes are thus fully passed on the currency of the importer.



In terms of macroeconomic factors, the key element is the monetary stability of a given country which has a negative effect on the level of exchange rate pass-through (Bacchetta & van Wincoop, 2003). Indeed, the more monetary conditions and inflation rates are stable, the more the degree of exchange rate pass-through remains low (Campa & Golberg, 2005).

These analysis have shown that understanding the degree of transmission of exchange rate changes to domestic prices depends on several factors including inflation, the size of a country, degree of openness, the nature of products imported, the duration of exchange rate fluctuations, their magnitude and their direction (appreciation or depreciation).

## 2.2 Empirical Review

There are studies that have investigated the impact of exchange rate pass-through on domestic prices covering developing, emerging and developed economies with inconclusive findings. For instance, McCarthy (1999) investigated the impact of exchange rate pass-through on import prices, domestic prices and producer prices in nine developed countries from the period 1976-1998 using Vector Auto-regression (VAR), impulse responses and variance Decompositions. The results showed that in most of the countries analyzed, the exchange rate pass-through to consumer prices was found to be modest. The rate of pass-through was found to be positively correlated to the openness of the country and negatively correlated with the volatility of the exchange rate.

Nidhaleddine (2013) investigated studied the pass-through of exchange rate in the context of the European Sovereign Debt Crisis for five heavily indebted namely Greece, Ireland, Italy, Portugal and Spain using smooth transition regression (STR) models. His results show that there is an important effect of macroeconomic instability on exchange rate pass-through.

Rudrani, Ila & Shah (2008) investigated the impact of a change in the nominal exchange rate on the wholesale and consumer price indexes covering the period 1997-2007 in India. Theirs results established cointegrating relationships. They found that exchange rate pass-through into domestic prices in India is negligible and moderate effect on World Price Index.

Murchison (2009) investigated the link between exchange rate pass-through and monetary policy in Canada. He tested the quantitative importance of changes in policy for exchange rate pass-through by varying the parameters of a simple monetary policy rule embedded in an open economy and dynamic stochastic general equilibrium model. The evidence indicated that in Canada policy has responded more aggressively to inflation deviations over the low pass-through period relative to the high pass-through period. The results suggested that increases in the aggressiveness of policy consistent with that observed for Canada are sufficient to effectively eliminate measured pass-through. However, his conclusion depends on the inclusion of price-mark-up shocks in the model, when these are excluded a more modest decline to pass-through may be experienced.

In studies that focus on African economies, Frimpong and Anokye (2010) analyzed the effect of exchange rate changes on consumer prices in Ghana using vector auto-regression (VAR)



models covering the period 1990–2009. They found that the exchange rate pass-through to inflation is ‘incomplete’ and decreasing in Ghana. Janine (2012) examined the exchange rate Pass-through to the monthly import prices in South Africa covering the period 1980–2009. The results of impulse response function implied by Structural Vector Autoregressive (SVAR) model with the pass-through estimates from the single equation analysis showed contradictory situation. At a 1-month horizon, the SVAR has a 0 response in contrast to around 4.5% for second method, while it has about 35% for SVAR at around 54% for the single-equation estimates after ten years.

Kamel, Ali, Lahcen, & Houaria (2015) examined the impact of exchange rate pass-through on producer and consumer price indexes in Algeria using a Vector Autoregressive Model (VAR) on quarterly data for the period 2002-2011. The empirical findings showed that the consumer price increases in response to an appreciate foreign exchange rates against the Algerian Dinar, while the pass-through of Euro against the Algeria Dinar exchange rate is ‘complete’ and more increasing in the time horizon compared to the pass-through of US dollar /DZ exchange rate. however, the exchange rate pass-through involves a negligible reaction on producer price index (PPI). On variance decomposition estimate, the magnitude contribution of demand shocks to explain CPI and PPI change is ranges from 50% and 17% after thirty quarterly respectively, whereas supply shock (oil price) continue to contribute largely to CPI fluctuations (30%) and quite modestly to PPI (5%).

Omar, El-Mahdi & Et-Hafida (2015) investigated the degree of exchanges rate pass-through to domestic prices during the period 1979-2014, with the aim of exploring the possibility of setting up a more flexible exchange rates system in Morocco. The study showed that exchange rate pass-through in Morocco is low overall suggesting that the implementation option of a more flexible exchange rate system can be considered in Morocco.

In studies that relates to Nigeria, Sanusi et al (2008) investigated the degree of exchange rate pass-through to import and consumer prices in Nigeria between 1986-2007 using Vector Error Correction (VEC) approach. They found that exchange rate pass-through in Nigeria during the period, though slightly higher in the import than in the consumer prices, is significant and persistent. A one percent shock to exchange rate, for example, results in 14.3% and 10.5% pass-through effect to import and consumer prices four quarter ahead, respectively. These results suggested that exchange rate pass-through in Nigeria declines along the price chain.

Adetiloye (2010) examined exchange rate and consumer price index (CPI) in Nigeria. He adopted the techniques of correlation and Granger causality to find the significance of the relationship between the consumer index and the exchange rate. It was found that there is high positive correlation between the ratio of imports and the index than exists between the parallel and the official rates. The co-efficient between autonomous exchange rate and the CPI is less significant than official rate, while the import ratio in the economy was found to show a near two-way balance causality with consumer price Index. The more significant one is causality is that import ratio granger causes CPI.

Ogundipe & Egbetokun (2013) used a Structural Vector Autoregressive (SVAR) model to estimate the pass-through effect of exchange rate changes to consumer prices. Using the Variance Decomposition analyses, the study found a substantially large exchange rate pass-through to inflation in Nigeria. The findings showed that exchange rate has been more important in explaining Nigeria’s rising inflation phenomenon than the actual money supply.

The findings of most studies thought support exchange rate pass-through effect on consumer price index, the degree of variation is inconclusive. Thus call for further investigation.

### 3.0 Methodology

#### 3.1 Model Specification

In order to investigate the impact of exchange rate pass-through on domestic price we take into consideration the Nigerian economy specifics with regards to negligible distribution chain of import and interest rate. The model developed by McCarthy (1999) and further estimated by Kamel, Ali, Lahcen & Houaria (2015) is adopted for this study. To analyse the exchange rate pass through on domestic prices framework in Nigeria, we modified our model to include nominal exchange rate, consumer price index, producer price index, import price index, broad money supply and oil prices.

Our model can therefore be specified as follow:

$$CPI_t = (EXR, PPI, IMI, M2, OLP)_t \tag{3.1}$$

Where CPI is the consumer price index used as proxy for domestic prices; EXR is nominal exchange rate of naira to a dollar (₦/US\$); PPI is producer price index, IMI is import price index; M2 is broad money supply indicating the influence of monetary policy; OLP is the oil price.

Our model can further be expressed in VAR representation as follows:

$$\begin{aligned} \Delta CPI_t = & \sum_{i=1}^P \beta_t \Delta CPI_{t-1} + \beta_0 \Delta EXR_t + \sum_{i=1}^P \beta_t \Delta EXR_{t-1} + \beta_0 \Delta PPI_t \sum_{i=1}^P \beta_t \Delta PPI_{t-1} + \beta_0 \Delta IMI_t \sum_{i=1}^P \beta_t \Delta IMI_{t-1} \\ & + \beta_0 \Delta M2_t \sum_{i=1}^P \beta_t \Delta M2_{t-1} + \beta_0 \Delta OLP_t \sum_{i=1}^P \beta_t \Delta OLP_{t-1} \\ & + \mu_{1t} \end{aligned} \tag{3.2}$$

$$\begin{aligned} \Delta EXR_t = & \sum_{i=1}^P \beta_t \Delta EXR_{t-1} + \beta_0 \Delta CPI_t + \sum_{i=1}^P \beta_t \Delta CPI_{t-1} + \beta_0 \Delta PPI_t \sum_{i=1}^P \beta_t \Delta PPI_{t-1} + \beta_0 \Delta IMI_t \sum_{i=1}^P \beta_t \Delta IMI_{t-1} \\ & + \beta_0 \Delta M2_t \sum_{i=1}^P \beta_t \Delta M2_{t-1} + \beta_0 \Delta OLP_t \sum_{i=1}^P \beta_t \Delta OLP_{t-1} \\ & + \mu_{2t} \end{aligned} \tag{3.3}$$

$$\begin{aligned} \Delta PPI_t = & \sum_{i=1}^P \beta_t \Delta PPI_{t-1} + \beta_0 \Delta CPI_t + \sum_{i=1}^P \beta_t \Delta CPI_{t-1} + \beta_0 \Delta EXR_t \sum_{i=1}^P \beta_t \Delta EXR_{t-1} + \beta_0 \Delta IMI_t \sum_{i=1}^P \beta_t \Delta IMI_{t-1} \\ & + \beta_0 \Delta M2_t \sum_{i=1}^P \beta_t \Delta M2_{t-1} + \beta_0 \Delta OLP_t \sum_{i=1}^P \beta_t \Delta OLP_{t-1} \\ & + \mu_{3t} \end{aligned} \tag{3.4}$$

$$\begin{aligned} \Delta IMI_t = & \sum_{i=1}^P \beta_t \Delta IMI_{t-1} + \beta_0 \Delta CPI_t + \sum_{i=1}^P \beta_t \Delta CPI_{t-1} + \beta_0 \Delta EXR_t \sum_{i=1}^P \beta_t \Delta EXR_{t-1} + \beta_0 \Delta PPI_t \sum_{i=1}^P \beta_t \Delta PPI_{t-1} \\ & + \beta_0 \Delta M2_t \sum_{i=1}^P \beta_t \Delta M2_{t-1} + \beta_0 \Delta OLP_t \sum_{i=1}^P \beta_t \Delta OLP_{t-1} \\ & + \mu_{4t} \end{aligned} \tag{3.5}$$

$$\begin{aligned} \Delta M2_t = & \sum_{i=1}^P \beta_t \Delta M2_{t-1} + \beta_0 \Delta CPI_t + \sum_{i=1}^P \beta_t \Delta CPI_{t-1} + \beta_0 \Delta EXR_t \sum_{i=1}^P \beta_t \Delta EXR_{t-1} + \beta_0 \Delta PPI_t \sum_{i=1}^P \beta_t \Delta PPI_{t-1} \\ & + \beta_0 \Delta IMI_t \sum_{i=1}^P \beta_t \Delta IMI_{t-1} + \beta_0 \Delta OLP_t \sum_{i=1}^P \beta_t \Delta OLP_{t-1} \\ & + \mu_{5t} \end{aligned} \tag{3.6}$$

$$\begin{aligned} \Delta OLP_t = & \sum_{i=1}^P \beta_t \Delta OLP_{t-1} + \beta_0 \Delta CPI_t + \sum_{i=1}^P \beta_t \Delta CPI_{t-1} + \beta_0 \Delta EXR_t \sum_{i=1}^P \beta_t \Delta EXR_{t-1} + \beta_0 \Delta PPI_t \sum_{i=1}^P \beta_t \Delta PPI_{t-1} \\ & + \beta_0 \Delta IMI_t \sum_{i=1}^P \beta_t \Delta IMI_{t-1} + \beta_0 \Delta M2_t \sum_{i=1}^P \beta_t \Delta M2_{t-1} \\ & + \mu_{6t} \end{aligned} \tag{3.7}$$

Where  $\mu_{1t} - \mu_{6t}$  are various innovations or shocks that changes in the variables can have on the dependent variable and ‘t’ is the time trend.

### 3.2 Technique of Analysis

The VAR model is adopted in this study because of its forecasting power relative to large structural models and analysing the dynamic impact of random disturbances on the system of variables. The VAR approach suggests the need for structural modeling by treating every endogenous variable in the system as a function of the lagged values of all of the endogenous variables in the system. Moreover, we use variance decomposition and impulse response for determining the sources and percentage responses of CPI, PPI and IMI variances to Nigerian exchange rate variation. The short term analysis of VAR models is relevant for monetary policies. The statistical properties of the series which include unit root test of stationarity and cointegration test are determined to avoid spurious estimation.

### 3.3 Data Source

In our paper, we use quarterly data for six macroeconomic variables that spans the period 1980Q1 to 2015Q4. The variables of the study are consumer price index (CPI), nominal exchange rate (parallel market rate) (EXR), producer price index (PPI), import price index (IMI), broad money supply growth rate (M2), oil prices (OLP). The variables were obtained from International Monetary fund (IMF) International Financial Statistics.

## 4.0 Empirical Analysis and Discussion of Findings

### 4.1 Unit Root Tests of Stationarity and Cointegration Tests

The Augmented Dickey-Fuller (ADF) (Dickey-Fuller, 1979) and Phillips and Perron, (1988) tests is used to determine the stationarity of the series. Our result, drawn from the unit root tests is presented in table 4.12. We cannot reject the null hypothesis of no stationary at levels. However, we accept stationarity of series at first difference which signifies integration of the variables at order 1 that is, I(1).

**Table 4.1: Unit Root Test of Stationarity**

Variable	Lag length	ADF test Statistic	PP Test	Order of Integration
CPI	8	-1.2342	-0.5352	
D(CPI)	8	-3.6822**	-4.4657***	I(1)
EXR	8	-0.3427	-0.1633	
D(EXR)	8	-3.7634**	-6.8439***	I(1)
PPI	8	-1.0436	-0.1540	
D(PPI)	8	-5.2374***	-9.2376***	I(1)
IMI	8	-3.0193	-2.5314	
D(IMI)	8	-4.2583**	-4.8632**	I(1)
M2	8	-2.0476	-1.9803	
D(M2)	8	-3.3750**	-4.5812***	I(1)
OLP	8	-2.1732	-0.9752	
D(OLP)	8	-3.2673*	-3.6849**	I(1)
<b>Critical Values</b>				
	1%	-4.3139	-4.3139	-
	5%	-3.5742	-3.3742	-
	10%	-3.2226	-3.224	-

Source: Computed by Author from E-Views7 iteration (ADF & PP Unit Root Test)

\*\*\* represents stationary at 1% level of significance; \*\* represents stationary at 5% level of significance; \* represents stationary at 10% level of significance, Level represents Logarithms of variables; 'D' represents that the variable has been differenced.

## 4.2 Johansen Cointegration Test

The Johansen cointegration based on the trace test is presented in table 4.2a and the maximum eigenvalue is presented in table 4.2b. There exist two cointegrating equations in trace test and one cointegrating equation in the maximum eigenvalue. The null hypothesis of no cointegration is thereby rejected.

**Table 4.2a: Johansen Cointegration (Trace Test)**

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.973205	272.8319	198.7082	0.0000
At most 1 *	0.901397	160.6265	143.8038	0.0000
At most 2	0.788774	88.81023	91.87610	0.0793
At most 3	0.475534	40.61062	42.91525	0.0835

<i>At most 4</i>	<i>0.345755</i>	<i>20.60398</i>	<i>25.87211</i>	<i>0.1968</i>
<i>At most 5</i>	<i>0.213664</i>	<i>7.451495</i>	<i>12.51798</i>	<i>0.2998</i>

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

**Table 4.2b: Johansen Cointegration (Maximum Eigenvalue)**

<i>Hypothesized No. of CE(s)</i>	<i>Eigenvalue</i>	<i>Max-Eigen Statistic</i>	<i>0.05 Critical Value</i>	<i>Prob.**</i>
<i>None *</i>	<i>0.973205</i>	<i>112.2054</i>	<i>82.49720</i>	<i>0.0000</i>
<i>At most 1 *</i>	<i>0.901397</i>	<i>71.81630</i>	<i>75.33101</i>	<i>0.1639</i>
<i>At most 2 *</i>	<i>0.788774</i>	<i>48.19961</i>	<i>42.11832</i>	<i>0.0852</i>
<i>At most 3</i>	<i>0.475534</i>	<i>20.00664</i>	<i>25.82321</i>	<i>0.2427</i>
<i>At most 4</i>	<i>0.345755</i>	<i>13.15248</i>	<i>19.38704</i>	<i>0.3159</i>
<i>At most 5</i>	<i>0.213664</i>	<i>7.451495</i>	<i>12.51798</i>	<i>0.2998</i>

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

### 4.3 Variance Decomposition

We use variance decompositions to explore the relative contribution of the structural shocks in explaining changes in inflation in the short and long term using consumer price index and producer price index in Nigeria. The variance decomposition reveals that foreign exchange shocks contribute less to inflation than money supply shocks. Specifically, while exchange rate changes account for only 2.7% to 15% of the variations of the price level, money supply shocks account for about 3% to 42% at the same horizon for the consumer price index in table 4.3a. This suggests that Nigerian inflation process is basically influenced by money supply changes other than exchange rate changes with tend to reduce significantly over time.

In table 4.3b, the result of the variance decomposition for the producer price index is presented. It shows that percentage change in producer price index as a result of exchange rate shocks is about 9% while the money supply shocks account for only 1.5% of the variations in the domestic price level after 14 years.

The magnitude contribution of demand shocks to explain CPI and PPI percentage change ranges from 42% and 7.8% after thirty quarterly, while, supply shock (oil price) continue to contribute largely to CPI fluctuations (35.3%) and PPI (25.5%).

Overall, the results suggest that monetary shocks (exchange rate and money supply) and oil price are important sources of CPI variation (45%). The oil price is also an important determine of CPI (35%). However, monetary shocks explain PPI variation only about 11% compared to oil price and imports that explain the variation in PPI of about 41%.

**Table 4.3a: Variance Decomposition of Consumer Price Index (CPI)**

<b>Forecast</b>	<b>horizon</b>	<b>CPI</b>	<b>EXR</b>	<b>IMI</b>	<b>M2</b>	<b>OLP</b>
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(quarterly)		(₦/US\$)			
3	69	6	7.2	3	14.6
12	53	4	5	21	16.5
30	37	3.5	4.5	27	26
+54	16	2.7	3	42	35.3

*Source: computed by author*

**Table 4.3a: Variance Decomposition to Producer Price Index (PPI)**

Forecast (quarterly)	horizon	PPI	EXR (₦/US\$)	IMI	M2	OLP
3		85	3.1	5	3.7	3.1
12		72	4.7	8	3	12
30		58	6	6	2.2	27.5
+54		49	9	15	1.5	25.5

*Source: computed by author*

#### 4.4 The Impulse Responses

The impulse responses present the dynamic responses of the exogenous variables in relation to the time of variation of the endogenous variable (Sims & Zha, 1999). It indicates an important pass-through from exchange rate to consumer prices especially the parallel (using bureau de change rate) compared to producer price index. The results seem incomplete pass-through takes about two quarterly in the sample period. The results from official rate to CPI seems to be flat from first to fifth quarter and gradually increase to 0.5% after. The parallel market rate increase sharply as it affects CPI by about 1% from first to tenth quarter. The influence of parallel market rate on PPI seems negative and modest increasing gradually to about 0.5%. The modest pass-through on producer prices clearly reflect the Dutch Disease effect on Nigerian economy and highlighted how manufacturing sector is yet to be developed as suggested by Kamel et al. (2015), where oil and gas revenues constitute the main source of government revenue. We can argue that exchange rate and other chains pass-through involves a small reaction on producer price index as compared to consumer price index.

#### 5.0 Conclusion and Recommendations

This paper examines exchange rate pass-through, import prices and consumer prices in Nigeria covering the period 1980-2015 using VAR approach. The approach is use to addresses specific features of the Nigeria economy, especially the import dependence nature and the role of foreign exchange inflows in the conduct of monetary policy. The degree of exchange rate pass-through was estimated by using variance decomposition and impulse response from the VAR. The empirical evidence suggests that exchange rate pass-through to consumer prices in Nigeria is substantial. This found support in Ogundipe & Egbetokun (2013); Adetiloye (2010) and Sanusi (2008) for Nigeria; Omar et al. (2015) for Morocco. However, our study estimated both consumer price index and producer price index unlike other studies that concentrated on the former.

The study suggests that the government should be more proactive in their drive towards diversification of the revenue base of the Nigerian economy. Developing the manufacturing sector is important in order to reduce importation of both capital and consumer goods that usually increase demand pressure on dollar. More appropriate and strategic exchange rate management in particular and monetary policy management in general is necessary.

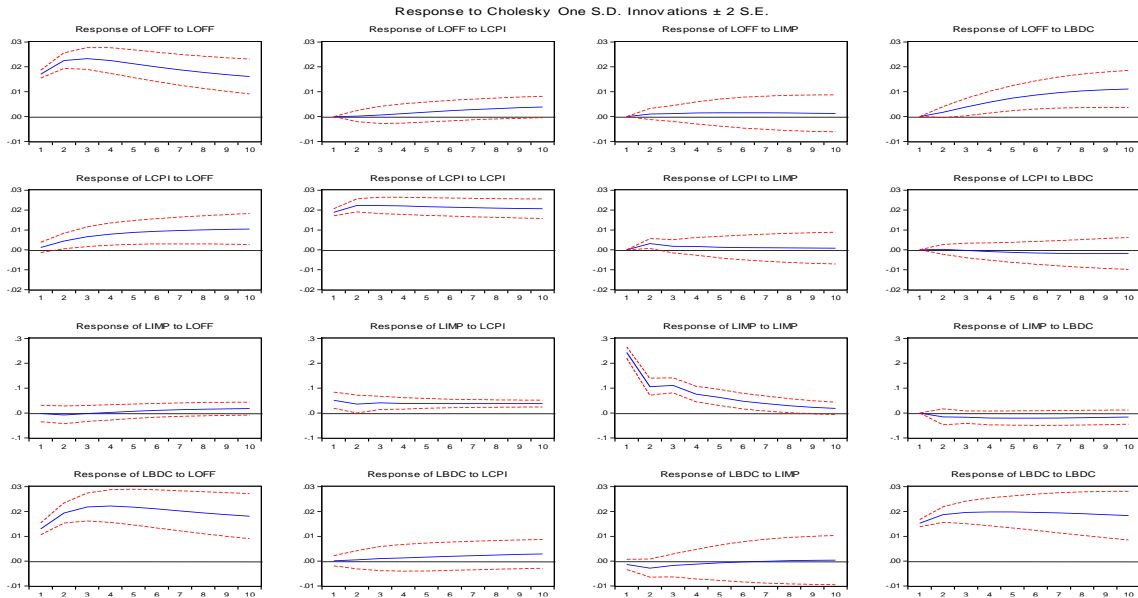
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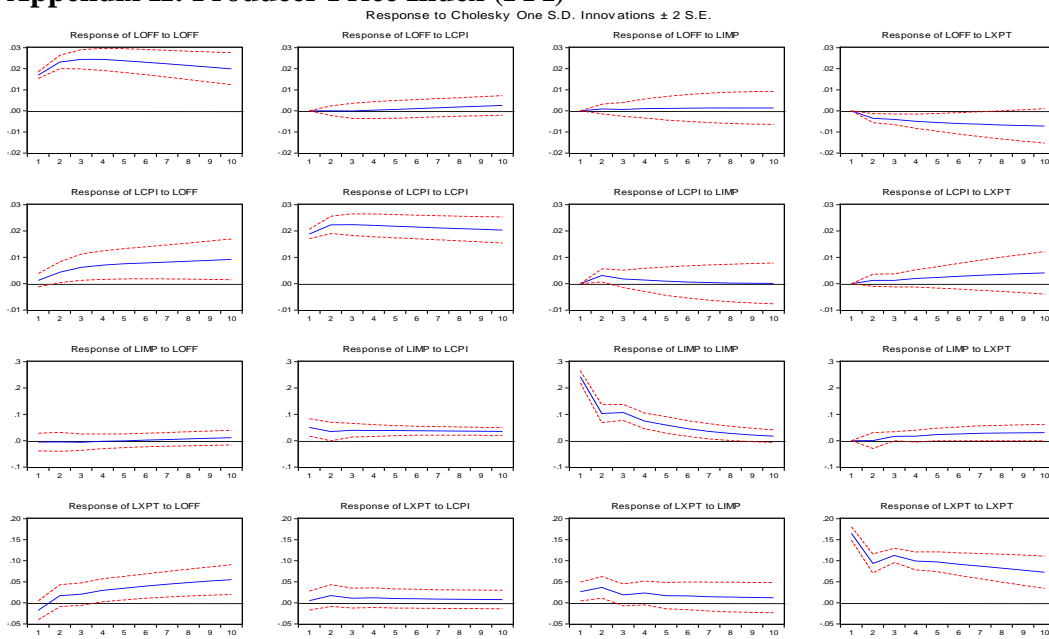


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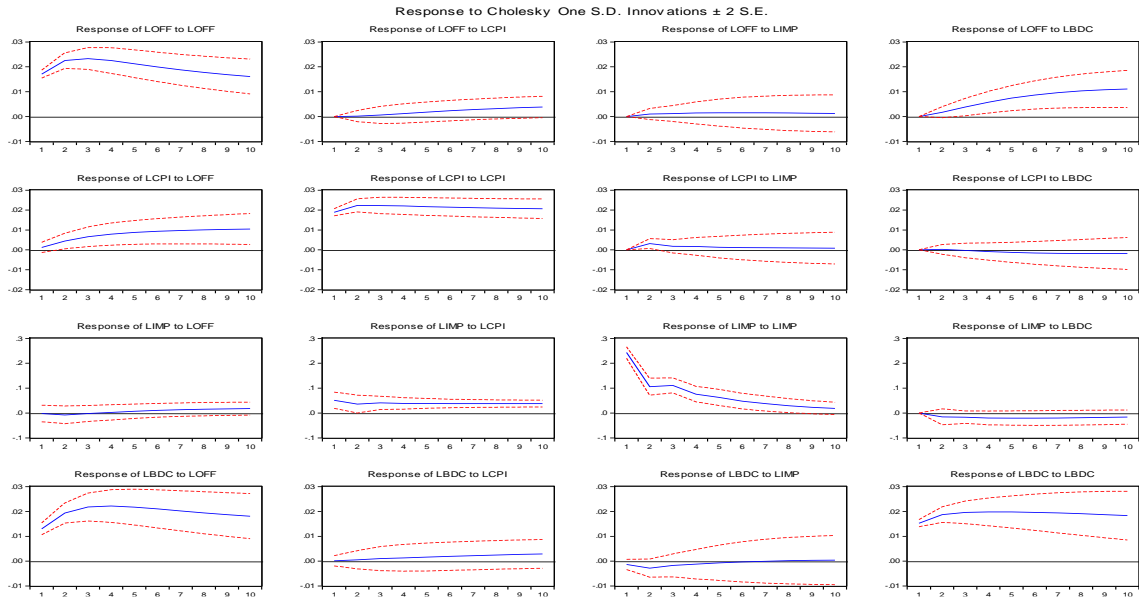
## Appendix I: Consumer Price Index



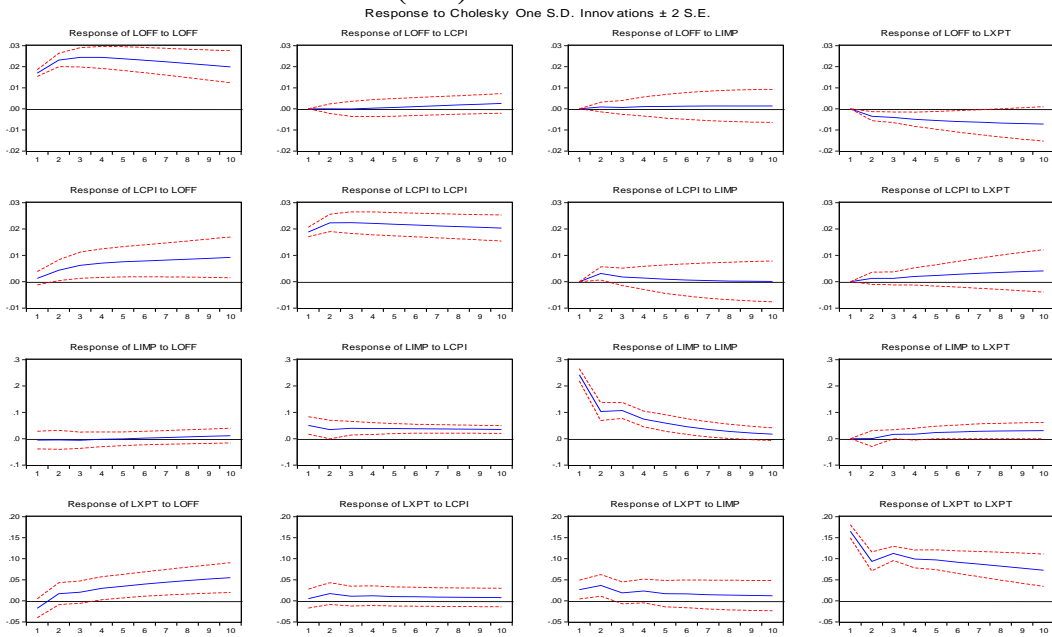
### Appendix II: Producer Price Index (PPI)



### Appendix I: Consumer Price Index



### Appendix II: Producer Price Index (PPI)



## THE ROLE OF SMALL AND MEDIUM ENTERPRISE ON NIGERIA'S ECONOMIC DEVELOPMENT FROM 2006-2016

GLORIA KAINNEE GBAPPY  
FACULTY OF BUSINESS AND SOCIAL SCIENCES  
NIGERIAN TURKISH NILE UNIVERSITY

### Abstract

The study examined the role of small and medium scale enterprise on Nigeria's economic development from 2006-2015. Primary data were used whereby questionnaires were distributed to some operators of SME in Nigeria and specifically around the Abuja metropolis. Literature materials were also adopted. However in the course of the study it was found that "small and medium Enterprise drives their country's development as they create employment and contribute to the gross domestic product". Therefore in order to improve the performance of SMEs in Nigeria it was recommended that amongst other things there should be capacity developments for both technical and management are a vital area, governments should develop and implement coherent policies that will enable SSEs compete, there should be adequate incentives to banks and other financial institutions that fund SSI.

### 1.0 Introduction

According to Nixon, (2001) "Development in a developing and underdeveloped economy like in most African countries taking Nigeria as a case study can only be given a boost by encouraging small and medium scale participation rather than depending on foreign investments and importation of readymade products, the problems facing small and medium scale firms are considered and strategies to harness their utmost benefits to meeting the needs of the immediate communities, the definition of SMEs depends mainly on the level of development of the country, in most developed market economies like the United States of America (USA), U.K. and Canada the definition criterion adopted a mixture of annual turnover and employment levels".

He further held that "in Nigeria, the Small and Medium Industries Enterprises Investment Scheme (SMIEIS) defines SME as any enterprises with a maximum asset based of N200 million excluding land and working capital and with a number of staff employed not less than 10 or more than 300, the role which small and medium enterprises play in economic growth of developing countries is immense". As rightly pointed out by Cook and Nixon (2001), "the development of small and medium enterprises (SME's) should be seen as attempts towards the achievement of a wider economic and socio-economic objective, including poverty alleviation, small and Medium Enterprises are expected to facilitate the growth and development of human and capital resources towards general economic development and the rural sector in particular". As posited by Cook, (2001) "In view of these expected roles from SMEs, the Nigerian government had in the past devised policies and incentives for the development of small and medium scale Enterprises". Such efforts according to Adebusuyi (1997), "could be classified broadly into three, namely (i) Incentives (fiscal and export), (ii) Tariff regimes, and (iii) Financial support and technical assistance programme, "the fiscal

incentives include tax relief for small enterprises during the first six years of operation, granting of pioneer status for a period of five years with a possible extension of two years for enterprises located in economically disadvantaged areas, and provision of relief for investment in infrastructure capital allowances, and minimal local raw material utilization income of 20 percent, export incentives include the introduction of import duty drawback, export credit and insurance schemes". In the same vein Kuteyi (2013) opined "that small and medium Enterprise drives their country's development as they create employment and contribute to the gross domestic product" (GDP) (Latinwo, 2010).

Ariyo, (2008); Ayozie and Latinwo (2010) and Muntala et al (2012) holds that "there is the greater likelihood that SMEs will utilize labour-intensive technologies thereby reducing unemployment particularly in developing countries and thus have an immediate impact on employment generation, to protect SMEs from dumping, the government adopted the use of high tariff rates to discourage importation of some of the industrial goods that could be produced domestically, and in some cases, complete ban on a variety of industrial and agricultural products, to provide funds to small and medium scale enterprises by way of commercial loans, the Bank of Industry (BOI) and the Nigerian Agricultural Cooperative and Rural Development Bank (NACRAB) were established, also established were National Economic agencies to provide loan scheme for SMEs".

Latinwo, (2010) further stated that "in spite of all these efforts by the government, both at federal, state, and local government levels, to ensure the growth of SMEs in Nigeria, people such as Abereijo et al have identified key factors which they claimed were responsible for their perceived failure of SMEs in Nigeria". It's on the premise of this introduction that the rest of the article examines the role of small and medium scale enterprise on economic development in Nigeria.

Notwithstanding, Nixon, (2001) stated that "several studies on the impact of SMEs indicates that in most developing economies, small and medium scale enterprises serve as the engine of growth, to mention a few in West African countries Specifically in Nigeria, SMEs have been responsible for more than 70 percent of exports and this is why these countries have been growing in leaps and bounds".

According to Duro (2013) "in Nigeria, SMEs are facing many challenges which are in no small measure affecting their growth of these enterprises, the most pronounced, however, is access to funds and effective infrastructure to operate, especially electricity". In the same vein Sacerdoti (2005) posited that "even banks with retained liquidity levels in excess of what is required by law have shown reluctance in extending loans to SMEs, especially on long term basis as they are considered highly vulnerable with high credit risk, small and medium scale Enterprises do not have the muscle to compete with the multinationals in terms of marketing because of what it takes in real terms to market a product, the amount one needs to produce in order to engage in profitable marketing to break even is not there for the local manufacturers".

According to Sacerdoti (2005) "most SMEs by their very nature are supposed to be the bedrock of the nation's economy but the operating environment has been very harsh for them

to thrive, currently, most of them can scarcely fund their operations, and the issue of mass or large scale production is ruled out, some manufacturers have gone under due to unhealthy operating environment occasioned by poor infrastructure, high cost of production, multiple levies and multiplicity of regulatory agencies, in terms of capacity building, very few, of SMEs can afford to attract and retain the right calibre of staff that will take charge of sensitive and high-tech positions in their companies” (Latinwo, 2010).

However it’s on the grounds of these aforementioned issues facing SMEs in Nigeria that the rest of this study is aimed at investigating the impact of SMEs on Nigeria’s economic growth performance. Hence the following questions are raised:

- i. To what extent have SMEs impacted on Nigeria’s economic growth performance?
- ii. To what extent have changes in some policy variables influenced the performance of small and medium scale enterprises (SMEs) in Nigeria?

The study intends basically to examine the role of SMEs on Nigeria’s economic development. Specifically, the study shall:

- i. Examine the impact of SMEs on Nigeria’s economic growth performance,
- ii. Determine the impact of changes in fiscal and monetary policies on the output of SME’s in Nigeria.

Furthermore, the essence of this study cannot be overemphasized in that the study tries to identify and analyse the impact of SMEs on economic development in Nigeria from. “The study shall give an insight on how job opportunities can be created and how poverty rate can be drastically reduced in the country, the research work will further provide useful information for policy makers for further development of SMEs through Microfinance activities with the view to enhancing both institutional and policy frame work in the sector, the major value-added of this research work will be the proffering of suggestions that will help policy makers in formulating policies that will help improve the growth of entrepreneurial skills among the citizens of Nigeria.

Essentially this research will focus on Nigerian economic development from 2006 to 2015. However the study is limited by time frame and inadequate access to relevant literature materials, notwithstanding the above limitations, the researcher is optimistic that the present study will be adequate to serve the purpose for which it is intended.

## 1.2 Literature Review

Most authors have examined the concept of SMEs as posited by Fagge (2004) “some of the areas that were visited include characteristics of small and medium scale enterprises, history of the subject both locally and globally, relevance of it to economic growth and development forms of small and medium enterprises among others”.

According to human development indicator in 2012 “Poverty, unemployment, and high crime rates in Nigeria have been of great concerns to the various governments (federal, state and local) as well as the civil society, the decreasing Human Development indicators as well as

low level of productivity in all sectors of the economy represent disturbing indices and also contribute to the dismal performance of Nigerian SMEs”.

Fagge stated that “the attainment of Millennium Development Goals (MDGs) to a large extent is contingent on how the various tiers of government vigorously pursue the development of SME sub-sector, the MDGs e.g. like halving the proportion of people living in extreme poverty, reducing maternal and infant mortality and increasing level of literacy by 2015 may become a mirage without a virile SME sub-sector”.

According to Fagge (2004), “both the World Bank and the International Labour Organization observed the role and trend of unemployment in Nigeria unemployment gap is widened by the industrial collapse and poor performance of agricultural sector over the years”. He further stated that “the discovery of oil has led to the dwindling revenue of the government from agricultural sector and an increase in revenue from the oil sector, the statistics by National Poverty Eradication Programme (NAPEP) shows that national unemployment figures in Nigeria is 70%”. He further stated that “out of 1,110,000 graduates produced by about 149 tertiary institutions in the 1996/1997 academic year, only 100,000 representing 10% were able to secure formal jobs while the rest were left at the mercy of the labour market”.

Fagge (2004) stated that “SMEs remain a veritable vehicle for the transformation of Nigerian economy, for the governments to realize the lofty objectives of the development programmes, the SME sub-sector has to be thoroughly revamped and focused, this is one of the ways that the government can be sure of realizing the objectives of the well-intended economic reforms and move the economy forward for the benefits of all stakeholders, particularly the impoverished masses”.

CBN, (2015) held that “the role or relevance of SMEs can be really appreciated by considering a brief account of its impact on Nigeria among the industrialized third world countries, the most significant catalyst to SMEs growth in Nigeria is the government, which has taken steps to engineer growth in this sector, through the right investment policies and incentives, the 2011 YOUWIN programme of past president Goodluck Jonathan gave a big boost in industrial development of the country”.

Sacerdoti (2005) held that “the high point of Nigeria’s industrial growth came in 2012 when the country focused attention to decentralizing the Small Scale Industries (SSI); tiny and cottage industries, this was followed by a period of technological upgrading and modernization in the 2013. By 2014, Nigeria had shifted attention to market oriented and international competitiveness, the impact of the deliberate efforts has been quite positive and outstanding, the SSI sub-sector accounts for about 40% of total industrial production and indication of about 9.9% growth in 2014 (CBN, 2015), compared with the aggregate growth of 3.6% recorded by the industrial sector as a whole”.

### **1.2.1 Nature of Small and Medium Enterprises**

Sacerdoti (2005) stated that “SME’s exist in the form of sole proprietorship and partnership, though some could be registered as limited liability companies, the management structure is



simple thus decision-making is easy, ownership and management fuse together in one person or few individuals, SME's relationship between employer and employees is largely informal, they operate in many areas of economic activities e.g. manufacturing, transportation, communication, etc. Majority is labour intensive, requiring more human per capital per unit of production, the technologies involved are always very simple, they have limited access to financial capital, (suffer from inadequacy of collateral), they make greater use of local raw materials, they enjoy wide dispersal throughout the country providing a variety of goods and services”.

### **1.2.2 Forms of SMEs Based on the Services Rendered**

(Owualah, 2003) posited that “sectors controlled by SMEs: Agro allied, Petrochemical and fertilizer, Chemicals, Plastic, Electrical and Communication (Electronic), Paper and wood pulp, Food processing, Machinery and fabrication, Construction, Cosmetic, Textiles and non-woven, Metal, Tools, Polymer, Information Technology (business center), Pharmaceutical”.

### **1.2.3 Sources of Funds for Small and Medium Enterprises**

According to Owualah (2003), “seven major sources of funding are available to SMEs: Personal resources, Family and friends, Partners or business associates, Informal financial markets comprising, individuals and group, including pool fund groups and co-operative societies, Banks (commercial and merchant), specialized banks like Peoples bank of Nigeria (PBN) and community banks, specialized funding facilities e.g. NERFUND, the World Bank Loan Scheme for SMEs managed by CBN and the African Development Bank (ADB) loan scheme for export stimulation in the SME sector, SMIEIS etc., specialized financial institutions such as the Nigerian Bank for commerce and Industry (NBCI), Nigerian Industrial Development Bank (NIDB) and the Nigerian Agricultural and co-operative Bank (NACB)”.

Owualah, (2003) further held that “international bodies involved in the development of SMEs are: United Nations Industrial Development Organization (UNIDO), United Nation Development Programme (UNDP)”.

### **1.2.4 The Relevance of SMEs to Economic Development in Nigeria**

According to Owualah, (2003) “unlike the large-scale industrialization strategy, which is the category of import- substitution strategy practiced by Nigeria without any success, small-scale industrialization has made a very glaring impact on the economy of nations”.

#### **i. Technological/ Industrial Development**

“They have short-term gestation period and high potentials for quick yield on investment. They therefore provide promising alternatives for countries that desire the fast option for industrial development”.

**ii. Employment Generation**

“It has been observed that more jobs per unit of investment capital and per unit energy consumed are created worldwide by SMEs than large -scale enterprises”.

**iii. Technological Acquisition**

“They provide opportunities for the development of local skills and technological acquisition, the "Aba made" syndrome is a clear manifestation of such technological acquisition and if encouraged will give rise to rapid economic development”.

**iv. Capacity Building**

“They provide a training avenue for the creation of local entrepreneurs in several areas of economic activities, they are regarded as the 'university' where a large class of Nigerian entrepreneurs usually receives training. It is therefore more important to lay a good foundation of an industrial class by promoting small entrepreneurs than it is to build a few large factories”.

**v. Promoting Growth**

“Most are involved in primary and secondary economic endeavors that rely heavily on locally sourced materials, equipment and parts. As a result they achieve high local value added operators”.

**vi. Increased standard of living**

“Sound development of SMEs has positive implications for improved standard of living of the citizenry and generates foreign exchange for further development of the economy”.

**vii. Industrial Dispersal or spread**

“They could easily be located in rural areas because they can survive on rudimentary industrial infrastructure, consequently, they serve as major facilitators for industrial dispersal and rural development and thus help in mitigating the rural-urban drift”.

**viii. Serving of large -scale industries**

“Raw material and goods are supplied to the large -scale industries while they engage in distribution of finished product from such industries to consumers”.

**ix. Export promotion**

“Most SMEs engaged in manufacturing serve as channels for import substitution and export promotion”.

**x. Structural Transformation of rural areas.**

“When they are cited in rural areas, they help to improve rural infrastructure and the living standard of the people, social amenities such as: road, electricity, pipe-borne water, telecommunication facilities, etc, are attracted to the area as a result of the presence of SMEs in the community”.

#### **xi. Flexibility**

“They react swiftly to changes in the operating environment, they therefore provide good testing ground for new products and nascent production technique”.

#### **xii. Low Take-off requirements**

“Take-off capital requirements are low, small-scale industrialization therefore widens the scope for participation in industrial activities by individuals with limited capital, they are effective instruments of mass participation in industrial development”.

### **1.2.5 The Problems Facing Small and Medium Enterprises**

Owualah, (2003) concluded that “the economic development in developing economy as a result of the contribution of SMEs is not really noticeable due to multifarious reasons that will be considered below”.

#### **i. Poor Financing.**

He held that “majority of them have limited access to foreign exchange as well as institutional credit, many of Nigerian credit institutions believe that it is risky to finance them due to the nature of the industry”.

According to Owualah, (2003) “a study carried out by UNDP and federal ministry of industries (FMI) in Nigeria showed that personal savings funded 1036 out of the 1498 SMEs or 69% of the SMEs and only 3.6% was granted credit by banks”.

#### **ii. Inadequacy of Infrastructural Base**

Infrastructural facilities are very inadequate. The power supply is so epileptic especially in Nigeria this has contributed to folding up of many SMEs. Others are:

- a. Unreliable telecommunication facilities. Thank God for the introduction of Global, system Mobile Communication (GSM) by MTN, Econet, etc. This is still relatively expensive to maintain.
- b. Poor state of road network.
- c. Water supply etc.

#### **iii. Low entrepreneur technical skill**

Lawal, (2002) held that “many entrepreneurs rush out to establish SMEs without having good and adequate technical skills, they covet the progress and profit of existing ones without good technical background”.

#### **iv. Multiplicity of Policies and Regulatory measure**

Lawal, (2002) stated that “SMEs, especially in Nigeria are confronted with multiple taxes charges on loans, importation (both of raw materials and machinery)”.

#### **v. Poor policy implementation**

Lawal, (2002) further opined that “the federal government has formulated good policies in the past but implementation and control has always been the problem”.

#### **vi. Lack of Continuity**

He continued that “immediately the owner, proprietor or entrepreneur dies physically or losses vision or commitment most small-scale enterprises die”.

#### **vii. Poor Capital Outlay**

In the same vein Lawal, (2002) concluded that “Inadequate capital long-term, medium-term and short-term finance negatively affect the establishment and smooth running”.

#### **viii. Poor Management Skill**

“Many SMEs lack good exposure to management theories, training and practices. Most entrepreneurs do not have the required management expertise to carry through once the business starts growing”.

#### **ix. Lack of Raw Materials**

“Some SMEs depend on externally sourced raw materials and fluctuation in foreign exchange does not give room for good planning so destabilize the set up”.

#### **x. Lack of database**

“They lack good record keeping and so do not have necessary information required for planning and management purposes, this usually affects the realization of the objectiveness of the sector”.

#### **xi. Unstable policy environment**

Lawal, (2002) stated that “instability in government policies had caused some establishments to collapse, one of such policies is that of the 1980s when government specified that cocoa should not be exported in raw, unprocessed form after a specified deadline, many industries had to import machineries only for the government to reverse this policy, this actually affected so many in the cocoa industry”.

### **xii. Wrong attitude of Entrepreneur and their workers**

Lawal, (2002) opined that “the attitude of some entrepreneur to loans and that of their workers to work is counterproductive, some entrepreneur when offered credit facilities, believes that this is their share of the “national cake”, they therefore mismanage such, since salaries or wages of those in SMEs are smaller compared to those in large-scale multinationals, some of the workers engage in eye service and are not productive”.

### **1.2.6 Problems with Policies on SMEs**

- “i. Lack of policy stability, that is frequent changes in policies, frequently undermines the implementation,
- ii. No genuine commitment on the part of government, private sectors and labours union to the achievement of a stated goal,
- iii. Unavailability of an enabling environment for the private sector, grass-root organizations and co-operative/ self-help group to effectively engage in SME by reducing inflation, exchange rate stability, security of life and properties to attract domestic and foreign investors. It is alarming to know that the current inflation rate is 19%,
- iv. No good framework for monitoring, implementation, and evaluating performance sectoral policy analysis and implementation should be strengthened. Monetary and fiscal policies on SMEs discriminate against SMEs development, They are:
- v. Inadequate fiscal measures”

### **1.2.7 Theoretical Review**

Lawal, (2002) opines that “there is no universal definition of small scale industry. Definition also changes overtimes, owing to changes in price level, advances in technology and other considerations, criteria that may be used in the definition of SSIs on small scale enterprises (SSEs) often include turnover, gross output and employment. These factors are usually used because they are functional and easy to measure”.

He continued that “in 1992, the National Council of Industry (NCI) streamed the definition of industrial enterprises for recurrent review every four years, there was a revised edition in 1996. In July 2001, the National Council of Industries at its 13th meeting in Markurdi, Benue State (NCI – 13) made the following revisions”.

#### **i. Micro/Cottage Industry**

“that is an industry with total capital employed of not than N15 million working capital but excluding cost of land and or a labour size of not more than 10 workers”.

**ii. Small – Scale Industry**

“an industry with total Capital employed of over N1.5 million but not more than N50 million, including working capital but excluding cost of land, and or labour size of 11 – 100 workers”.

**iii. Medium – Scale Industry**

“an industry with a total capital employed of over N50 million but not more than N200 million, including working capital but excluding cost of land, and or a labour size of 101 – 300 workers”.

**iv. Large – Scale Industry**

“an industry with a total capital employed of over N200 million, including working capital but excluding cost of land or a labour size of over 300 workers, comparatively, most advanced countries seemed to have agreed on a maximum limit of 500 employees as a small Firm”.

**1.3 Methodology**

The data used for the research work is majorly primary and secondary sources of data. Primary data were sourced through questionnaires whereas secondary data are already analyzed data that supplies the researcher with information and thus the researcher does not have to generate the data himself. The source of secondary data consists of published documents like magazines, journals, textbooks, seminars, conferences, workshop papers and past projects related to the role of SME’s on economic development in Nigeria.

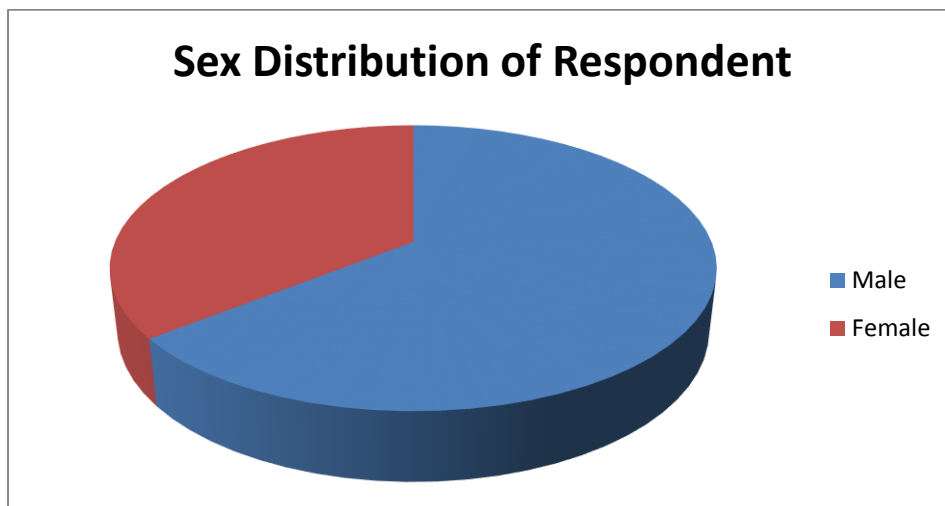
In addition in the course of generating primary data questionnaires were distributed to some SMEs in Abuja city the nation capital with the aim of eliciting relevant information on the topic under study. A total of fifty (50) questionnaires were drafted.

**Analysis of Research Question**

**Table one (1) Sex Distribution of the Respondent**

<b>Gender</b>	<b>Frequency</b>	<b>Percentage %</b>
<b>Male</b>	<b>30</b>	<b>60</b>
<b>Female</b>	<b>20</b>	<b>40</b>
<b>Total</b>	<b>50</b>	<b>100</b>

**Source:** Field Survey April, 2016.



From the study conducted above, it can be deduced that a total of fifty (50) responses were used for the analysis. Gender plays an important role in both the private and public sector organizations. As such the table examines gender participation level as regards the questionnaires distributed. It can be seen however, that a total of 20 female participated in the research questions, having an aggregate of 40 representation of the whole frequency population used. On the other hand a total of 30 male respondents participated in providing response to the distributed questionnaire having an aggregate of 60% representation. However from the analysis conducted above it can be said that the response will be mostly of male's perception as regards to the role of SMEs in Nigeria.

**Table two (2) Age Distribution of Respondents**

Age	Frequency	Percentage %
21 – 30	10	20
31 – 40	20	40
41 – 50	10	20
51 & above	10	20
<b>Total</b>	<b>50</b>	<b>100</b>

Source: Field Survey April, 2016.

From the study conducted above, it can be deduced that most of the respondents are within the age range of 31-40 and above with a frequency representing 40% of the total respondents population, with the rest having the same number of representation.

**Table three (3) Distribution of Respondents According to occupation**

No of years of service	Frequency	Percentage %
Civil servant	5	10
Business	30	60
Artisan	5	10
Foremen	5	10
Others	5	10



<b>Total</b>	<b>50</b>	<b>100</b>
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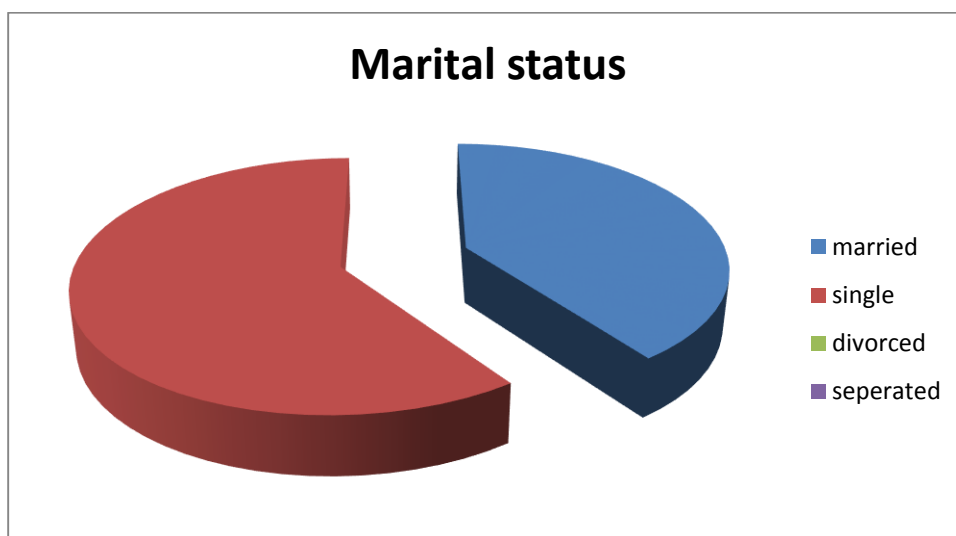
**Source:** Field Survey April, 2016.

The above table shows the distribution of respondents according to occupation. From the table it can be seen that only 30 respondent representing 60% are business people representing the highest number of respondents while the rest are artisans, foremen, civil servants, etc.

**Table four (4) Distribution of Respondents According to Marital Status**

Marital status	Frequency	Percentage %
Married	20	40
Single	30	60
Divorced	0	0
Separated	0	0
Total	50	100

**Source:** Field Survey April, 2016.



From the table above, the research presents the marital status of the respondents. However, it can be seen that a total of sixteen (15) respondents were used in the analysis. From the total of twenty (20) respondents which were utilized the table shows that all of the respondents are married, thirty (30) single and none separated. Therefore most respondents are single.

**Table five (5) Distribution of Respondents According to Educational Qualification**

Educational qualification	Frequency	Percentage %
B.sc	40	90
M.sc	5	10
PhD	5	0
Others	0	0
Total	50	100

**Source:** Field Survey April, 2016.

The above table shows the distribution of respondents based on their academic qualifications. From the table it can be seen that 40 respondents representing a total of 90% of the total respondents are bachelor's degree holders only, followed by 5 respondents who have an M.sc, 5 respondents with PhD and 0 with other certificates. It can be inferred from the above study that most of the respondents are B.sc degrees, who are well informed on the research topic.

1. Table six (6) Response on whether SMEs have impacted Nigeria's economic growth performance?

Response rate	Frequency	Percentage %
Yes	40	90
No	10	10
Total	50	100

Source: Field Survey April, 2016.

It can be seen from the above table that most of the respondents agreed representing 90% that SMEs have impacted Nigeria's economic growth performance, while 10% disagreed.

Table seven (7) responses on whether changes in some policy variables influenced the performance of small and medium scale enterprises (SMEs) in Nigeria

Response rate	Frequency	Percentage %
Yes	30	60
No	20	40
Total	50	100

Source: Field Survey April, 2016.

From the table above it can be concluded that 30 respondents agree that changes in some policy variables influenced the performance of small and medium scale enterprises (SMEs) in Nigeria, while 20 disagree. However it can be deduced that changes in some policy variables influenced the performance of small and medium scale enterprises (SMEs) in Nigeria.

Table eight (8) Responses on whether government has a role to play in improving the performance of SMEs in Nigeria

Response rate	Frequency	Percentage %
Yes	50	100
No	0	0
Total	50	100

Source: Field Survey April, 2016.

The table above examines whether government has a role to play in improving the performance of SMEs in Nigeria. All 50 respondents agreed that government has a role to

play in improving the performance of SMEs in Nigeria. It can be deduced from the above that government has a role to play in improving the performance of SMEs in Nigeria.

Table Nine (9) Response on whether poor access to finance is part of the limitation of SMEs in Nigeria

Response rate	frequency	Percentage %
Yes	40	90
No	10	10
Total	50	100

Source: Field Survey April, 2016.

The study conducted above shows the response rate of the respondents as regards if poor access to finance is part of the limitation of SMEs in Nigeria. It can be concluded that 90% respondents agreed that poor access to finance is part of the limitation of SMEs in Nigeria while 10% disagreed.

#### 1.4 Conclusion

In summary Awoseyila, (1997) held that “developing and underdeveloped countries like Nigeria lack good policies that favour SMEs development, until the attitudes of our governments (Federal, State and local), ministry and agencies associated with the industry change, industrialization will be a mirage, there is need for policy effectiveness, which has been undermined by policy instability and inconsistency over time, there is therefore, the need to examine the policy environment and identify the important elements to be focused, the important elements include the need for policy stability which breeds credibility, policy consistency, genuine commitment, efficiency of infrastructural services, sustained development of institutions, provision of enabling environments and development of framework for evaluation of policy measures and monitoring implementation, if industrialization in Japan and the third world industrialized nations like, India, Malaysia, etc are studied and religiously followed; we will replicate their feat”.

#### 1.5 Recommendation

The following panaceas are proffered:

- i. “There should be capacity developments for both technical and management are a vital area. These will ensure high quality manpower that can manage and sustain the industries”.
- ii. “Development of industrial incubator estates that are fully equipped and serviced with utilities and communication facilities for long-term leasing to deserving Small-Scale manufacturers”.
- iii. “Governments should develop and implement coherent policies that will enable SSEs compete and survive on a commercial footing. It should avoid pursuing policies and enacting laws and regulations that would create disincentives to SMEs growth and developments”.

- iv. "There should be adequate incentives to banks and other financial institutions that fund SSI. That will help to encourage them",
- v. "Taxation should be more business friendly and less costly",
- vi. "Licensing and other registration procedures should be simplified and their implementation decentralized to local accessible locations",
- vii. "Federal Government should drastically review its customs, excise and tariff laws to give legal backing to trade liberalization policies to encourage local manufacturers".
- viii. "Anti-corruption laws should be strictly applied without fear or favour and government should be ready to make examples of people found guilty".
- ix. "A good percentage of the oil revenue should be reinvested into manufacturing and agriculture which when thriving will complement the revenue generated".

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## FINANCIAL DEVELOPMENT AND INCOME INEQUALITY: A REVIEW OF LITERATURE

Hamzat Soliu<sup>1</sup>, Abdulkarim Abdurashheed Isah<sup>2</sup>

<sup>1</sup>*Department of Economics, Ahmadu Bello University, Zaria*

<sup>2</sup>*Department of Economics, Ahmadu Bello University, Zaria*

*Presenting author: sozatt@yahoo.com*

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### Abstract

*Economic theories suggest contrasting conclusions on the nexus between financial development and income inequality. Some (Greenwood & Jovanovic (1990)) predict an inverted U-shaped relationship between financial development and inequality, while others (Galor & Zeira (1993) and Banerjee & Newman (1993)) predict a negative and linear relationship between the two variables. A substantial body of empirical literature finds evidence for the negative and linear hypothesis. In this article, we provide a systematic review of the existing literature on finance-inequality nexus and subject it to close scrutiny by pointing out some salient gaps in the literature. We conclude by making recommendations for future researchers.*

### I. INTRODUCTION

There is large body of literature on the relationship between financial sector development and economic growth. Levine (2005) showed this through a comprehensive theoretical and empirical review of finance-growth nexus. The conclusions from most of these studies are that financial development promotes growth; hence policies that lead to deepening of the financial system have been widely advocated. Economists (for instance Schumpeter, 1911; Shaw, 1973; McKinnon, 1973; King & Levine, 1993) emphasize that financial development is critical to growth because it mobilizes savings, improves allocation of resources, reduces information asymmetry, and facilitates management of risk and diversification. It also fosters financial stability to the extent that a developed and well-functioning financial systems help reduce the impact of shocks (Sahay *et al.*, 2015; Seven & Coskun, 2016).

While the consensus in the literature indicates that financial development promotes faster economic growth, relatively little studies have explored the link between financial development and income inequality (Beck *et al.*, 2007; Clarke *et al.*, 2003; Nikoloski, 2013). It was at the turn of the twentieth century economists started to consider the effect of financial development on income inequality.

Economic theories provide conflicting predictions on the relationship between financial development and income inequality (Greenwood & Jovanovic, 1990; Banerjee & Newman, 1993; Galor & Zeira, 1993; Rajan & Zingales, 2003; Galor & Moav, 2004). One strand of literature proposes a negative linear effect of financial development on inequality. Two

theories developed separately by Banerjee & Newman (1993) and Galor & Zeira (1993) belong to this theoretical strand. The major proposition of these models is that financial imperfections such as transaction costs, financial asymmetries, and costly contract enforcement may be a stumbling block for low income people who may want to borrow to invest in their human capital (such as education) and poor budding entrepreneurs who may lack credit histories, networks and collateral. These constraints will in turn inhibit the flow of capital to poor individuals with lucrative projects or proposals, hence leading to inefficient allocation of capital and worsening income inequality. In line with the foregoing, improvements in financial contracts, intermediaries and markets would reduce income inequality (Banerjee & Newman, 1993; Galor & Zeira, 1993).

Another variant of theoretical literature on financial development and inequality predicts an inverted U-shaped relationship between them. Greenwood & Jovanovic (1990) developed their inverted U-shaped theory based on the assumption that at low levels of economic development, access to financial intermediaries is restricted to few people because of high (fixed) transaction costs. Hence finance would be positively associated with inequality. However, with economic development overtime, more deficit spending units emerged to interact with surplus spending units through financial intermediation, which in turn facilitate growth but tighten income distribution. Similarly, Galor & Moav (2004) developed a model based on inequality and growth dynamics which suggests the existence of an inverted U-shaped relationship between financial development and inequality.

A third theoretical strand predicts a positive effect of financial development on inequality. Rajan & Zingales (2003) posit that financial intermediaries largely conduct transactions only with the rich while the poor are excluded due to constraints such as collateral. Even with development in the financial sector, the rich would still have upper-hand in the financial transactions, which further widens the gap between the rich and the poor.

So far, there have been several attempts at empirically investigating the link between financial development and income inequality. While majority of the empirical studies suggested that financial development is negatively associated with inequality (Clarke *et al.*, 2003, 2006; Beck *et al.*, 2007; Batuo *et al.*, 2010; Kappel, 2010; Li *et al.*, 1998; Bittencourt, 2006), others have shown a positive link between the two variables (Jauch and Watzka, 2012; Law & Tan, 2009; Fowowe & Abidoye, 2013; Wahid *et al.*, 2012). Still some studies noted that the effect of financial development on inequality changes overtime (Nikoloski, 2013; Mansour & Wendel, 2015; Jauch & Watzka, 2012; Canavire-Bacareza & Rioja (2011); Kim & Lin, 2011). Hence, the evidence is mixed and diverse as the theoretical literature.

Despite the intense scholarly interest in the conversation on finance and income inequality, only a few review studies have specifically focused on financial development and inequality (Demirgüç-Kunt & Levine, 2009; Claessens & Perotti, 2007). To the best of the knowledge of the present authors, a full-blown systematic quantitative review on finance-inequality nexus is yet to be conducted. The objective of this study therefore is to identify the frontiers of the knowledge on financial development and inequality. In other words, the aim of the study is to find out whether there is a particular consensus on the relationship between financial development and inequality. This article can also guide policy makers on what to

look out for in an evidence-based research on financial development and economic development in general. To be more precise for example, the decision on the region of an economy to be given priority in the allocation of financial intervention could be informed by the result of this study because consensus are influential in applied works.

Following this introduction, the remainder of the article is organized as follows. Section two outlines the methodology used in conducting the systematic review, including the criteria for including studies in the review. In section three, we present a synthesis of the relevant studies reviewed in this article, while section three discusses issues and challenges in the finance-inequality research and offers some directions for future research. Section five concludes the article.

## II. METHODOLOGY

A systematic review of existing literature was used to achieve the objective of the study. Precisely, both qualitative and quantitative review of published and a few unpublished works made up the systematic review. Purposive sampling technique was used to select the literatures identified through leading electronic data bases for the paper and the literature were grouped by the direction of their findings. Simple percentages of the findings of each group were taken. As the population of relevant works to be reviewed are not known, the authors selected all the works that meet up with the pre-determined criteria of selection. Search words related to financial development and inequality were used to search for the literatures to be reviewed through the search engines of some data bases.

In particular, we selected relevant studies by searching several scholarly electronic databases. These databases included: JSTOR, Science Direct, Research Papers in Economics (RePEc), Social Science Research Network (SSRN), Scopus, Google Scholar, National Bureau of Economic Research (NBER) working papers, Research Gate, and EThOs. We also searched institutional repositories of several Universities including University of Oxford, London School of Economics (LSE), University of Glasgow, University College London (UCL), Middle East Technical University (METU). In addition, we manually identified additional studies in the reference lists of the relevant research articles obtained through the electronic database search. We conducted our literature search from February 10 to April 15, 2016. The keywords used in the literature search included: 'financial development', 'financial deepening', 'income inequality', 'inequality' and 'income distribution'. Other terms searched for were 'finance', 'income shares', 'financial intermediation', 'financial markets', 'stock market development' and 'financial access'.

We included research papers published in peer-reviewed academic journals, theses, and working papers that satisfied our inclusion criteria specified below. We excluded studies that merely investigated either financial development or income inequality and not both. Also excluded were those that did not investigate the nexus between financial development and inequality, however we included studies that simultaneously examined the effect of financial development on income inequality and other variables (e.g. poverty or growth). In addition studies that did not use a measure of inequality (for instance, Gini coefficient or income share of the quintiles) as dependent variable were excluded. We also categorically excluded studies



written in languages other than English because our search is restricted to English literature only. Time frame was not used as a basis for inclusion as all studies that meet the above mentioned criteria were considered regardless of their respective year of publication or period covered in the studies. This is to have a wide pool of studies to select from. In other words, it is important to specify inclusion criteria that allowed us to select relevant research articles from a large body of literature on financial development and inequality. In essence, we included studies that use inequality as a dependent variable and financial development as an independent variable, and;

- i. Investigate either a single country or cross section or panel of countries.
- ii. Investigate the finance-inequality nexus using a multivariate regression model.
- iii. Are written in English Language
- iv. Published in a peer-reviewed academic journal or as thesis or working paper.

From each of the original research articles examining the nexus between financial development and inequality, the following information was recorded in our database: (i) author(s), (ii) variables used, (iii) econometric method, (iv) country sampled, (v) name of the journal or publication, (vi) year of publication, and (vii) the findings of the study. Based on the database generated on item (i) to (vii), the selected research papers were grouped into cross country, panel studies and country specific studies.

Our method is not without its constraints. First, given that we have not attempted any replication of the studies reviewed we cannot comment on the validity of the results presented in the original articles reviewed. Second, our review may not have covered all the studies on the finance-inequality nexus because we have not included studies written in languages other than English. Definitely a review of non-English publications would have deepened our understanding of the extant evidence in this field of research. Third, our review may not be “all-comprehensive” since there might be other offline published works on the finance-inequality nexus

### **III. RESULTS**

By systematically searching electronic databases using our inclusion criteria, we identified a large number of studies relevant to the criteria of selection. After reading their abstracts (and in few cases full papers), we selected 31 relevant studies investigating the effect of financial development on inequality. Of these, 22 (71 per cent) were cross country and panel studies, while the remaining 9 (29 per cent) were country specific studies. Tables 1 and 2 in the appendix provide a synopsis of the papers reviewed in this article.

The results show that the effect of financial development on income inequality is mixed and inconclusive. 71 percent (i.e. 22) of the studies support the income inequality reducing effect of financial development; 13 percent (i.e. 4) provide evidence for income inequality widening effect of financial development, while 9 percent (i.e. 3) provide support for the inverted U-shaped relationship between financial development and income inequality. In addition, 6 percent (i.e. 2) show a U-shaped relationship between the two variables. 32 per cent (i.e. 7) of the studies that found negative relationship between financial development and inequality are

country specific studies, 45 per cent (i.e. 10) of them are panel studies and the remaining 22 per cent (i.e. 5) are cross-sectional studies. 3 panel data studies find an inverted U-shaped relationship between financial development and inequality. While 1 panel data and 1 cross country studies indicate a U-shaped relationship between the two variables. In addition, 2 panel data and 2 country specific studies show no any significant effect of finance on inequality.

The present empirical literature on finance-inequality nexus is dominated by papers that have found negative effect of financial development on income inequality. Li *et al.* (1998) employing data for 140 developed and developing countries between 1960 and 1994 found that financial sector development is associated with lower income inequality. Another early empirical evidence in this regard was provided by Clarke *et al.* (2003). Using a sample of 91 countries for the period 1960-1995, they found that income inequality reduced as economies developed their financial intermediaries, which corroborated the hypothesis of Banerjee and Newman (1993) and Galor and Zeira (1993). The results remained robust after controlling for biases introduced by simultaneity. In a subsequent study, Clarke *et al.* (2006) used 2SLS, random effects and instrumental variable estimator on a sample of 83 countries for the period 1960-1995 and indicated a robust negative effect of financial development on inequality, while no any robust evidence was shown for the existence of the inverted U-shape hypothesis proposed by Greenwood and Jovanovic (1990).

Furthermore, Beck *et al.* (2007) in seminal article echoed a similar finding based on a sample of 72 countries for the period 1960-2005. Their results indicated that financial development not only reduced growth rate of Gini coefficient but also disproportionately raised income of the poor and reduced income inequality. Thus, these works suggest that financial development reduces both level and growth rate of income inequality. Other cross country studies that found negative effect of financial development on inequality include Hamori and Hashiguchi (2012), Kappel (2010), Zielschot (2013), Akbiyik (2012), Mookerjee and Kalipioni (2010), Nwafor (2015), Gimet and Lagoarde-Segot (2011), Naceur and Zhang (2016), Blau (2015). Similarly, Batouet *al.* (2010) used a sample of 22 African countries over the period 1990-2008 and found that financial development is negatively associated with income inequality.

In addition, some country level studies also found that financial development is negatively associated with income inequality. For example, Ang (2010) found that financial development has negative effect on inequality in India for the period 1951-2004. Similarly, Bittencourt (2006) examined the finance-inequality nexus in the case of Brazil and found that financial development lowered inequality and raised income share of the lowest 20%. This finding is also reflected in different studies on China (Liang, 2006, 2008); Pakistan (Shahabz & Islam, 2011); Vietnam (Hoi & Hoi, 2012); and Iran (Baligh & Pirae, 2013).

While it is clear from the above studies that financial development improves income distribution, the strength of the effect can differ according to the proxy used. For instance, private credit (% GDP) is shown to have stronger impact on income inequality than stock market capitalization (% GDP) (Naceur & Zhang, 2016; Kappel, 2010; Gimet & Lagoarde-Segot, 2011; and Ang, 2010). This is understandable because the poor have easier access to financial intermediaries (such as banks) than stock markets that mostly have stringent

participation requirements. In addition, these markets are mostly concentrated in the urban areas.

There are different possible reasons why majority of the papers indicated that financial sector development can improve income distribution. First, a greater access to finance allows the poor to borrow to smooth their consumption, invest in their human capital, especially education and health, or start up new ventures, hence reducing the income gap between the rich and poor. Second, financial development promotes economic growth, which may trickle down to the poor in the form of increased job opportunities or high demand for low-skilled workers, which raises wages of the poor and eventually leads to lower income inequality. The channels through which finance can benefit those in lower socioeconomic strata have been extensively discussed by Demirgüç-Kunt & Levine (2009).

A category of empirical literature provided evidence for the existence of nonlinear relationship between financial development and inequality. But this category can be divided into two. First, there are those that showed an inverted U-shaped relationship between finance and inequality, hence corroborating the predictions of Greenwood & Jovanovic (1990). Based on this literature, at early stages of financial development, financial market imperfections such as fixed transaction cost allowed only the rich to benefit from financial development. But as financial credit constraints eased with further deepening of the financial system, poor people get better access to finance thus reducing inequality. For example, Nikoloski (2013) using a sample of large number of developed and developing countries for the period 1962-2006 had found a robust empirical evidence for the existence of inverted U-shaped relationship between financial development and inequality. According his results, the turning point beyond which finance worsens inequality is reached when private credit is approximately 114% of GDP. Similarly, Jauch & Watzka (2012) indicated some evidence for the inverted U-shaped relationship based on dataset for 138 developed and developing countries over the period 1960-2008. Based on their results, the turning point is when private credit is 127% of GDP for gross income and 140% of GDP for net income. In similar fashion, Canavire-Bacareza & Rioja (2011) found similar evidence using data for 21 Latin American and Caribbean countries over the period 1960-2005. Kim and Lin (2011) also found evidence of the existence of an inverted U-shaped relationship between finance and inequality based on a sample of 53 countries.

Second, there are two papers that found a U-shaped relationship between financial sector development and inequality. Park & Shin (2015) recently noted in their study of 162 countries between 1960 and 2011 that as financial system develops, income inequality reduces. But if financial development reaches a certain threshold, it will start to aggravate income inequality. The authors claimed that their results point to the possibility that the increase in inequality in advanced countries may be due to the adverse impact of financial development on inequality. Similarly, Mansour & Wendel (2015) also found similar evidence for East Asian countries for the period 1960-2012. The authors concluded that the effect of finance on inequality in East Asian countries followed somewhat similar pattern with the switch from “growth with equity” to “growth with inequality” as experienced in the region. They advocated two possible strategies for alleviating the inequality-enhancing role of

financial development. These included (1) improving financial regulation and innovation; and (2) enhancing financial education among the poor.

Other studies, however, have challenged the findings that financial development can lead to reduction in inequality. For instance, Fowowe & Abidoye (2013) in their study of large number of African countries found that financial sector development has not significantly reduced income inequality. Similarly, Law & Tan (2009) using ARDL found that financial development has not been successful in reducing income inequality in Malaysia for the period 1980-2000. They found similar results using different proxies for financial development. Canavire-Bacareza & Rioja (2011) have also shown in their study of 21 Latin American countries that financial development had no any significant effect on the income of the poorest quintile.

#### **IV. DISCUSSION OF RESULTS AND ISSUES**

##### *Variables*

Our systematic review shows that researchers on finance-inequality nexus have used different proxies as indicators for financial development. The most common proxy of financial development is the private sector credit as a ratio of GDP. This proxy is based on the credit given to households and private firms by banks and non-bank financial intermediaries but excluding credit to government and government-owned enterprises. Furthermore, this proxy has been used by Greenwood & Jovanovic (1990) to measure the extent to which households and private firms have access to financial intermediation and by Banerjee and Newman (1993) and Galor & Zeira (1993) to measure access to loan for households and private firms. Hence, private credit is a better proxy for financial development than other proxies such as broad money, bank assets, stock market capitalization, all as ratios of GDP, (Beck *et al.*, 2006; Nikoloski, 2013). On the other hand, the most popular proxy for income inequality is Gini coefficient. This is calculated as the ratio of the area between the line of 'perfect equality' and Lorenz curve. It has value between 0 (perfect equality) and 1 (perfect inequality), however it can be unbounded using procedure suggested by Reuveny & Li (2003) and Nikoloski (2013). Other studies also used income shares of quintiles, especially poorest and richest quintiles, to test the effect of finance on income distribution. The literature on financial development and inequality also employs many control variables including per capita GDP, inflation, government spending, legal origin, and human capital measures (e.g. primary school enrolment).

##### *Econometric Methods*

Recent literatures on the relationship between financial development and income inequality have employed different econometric methods in testing the relationship between the two variables. These include OLS, ARDL, conditional ECM, fixed effects, random effects models based on instrumental variables (2SLS) and dynamic GMM.

An important problem faced by researchers when analyzing the effect of financial development on income inequality is the existence of endogeneity, unobserved heterogeneity and reversed causality between the variables (Nikoloski, 2013; Batuo et al., 2010, Akbiyik, 2012; Nwafor, 2015). Hence in order to solve this problem, must researchers use the Generalized Method of Moment (GMM) estimator developed by Arellano & Bover (1991) and Blundell & Bond (1998). This estimator proceeds by first-differencing each variable to remove the country specific effects and then utilizes all possible lagged values of the explanatory variable as instruments to solve the problem of endogeneity (Dominiciset al., 2008).

Another challenge is finding a replicable and comparable proxy for income inequality. The World Bank database provides Gini coefficient for almost all countries but has a lot of gaps or 'missing' years. A more comprehensive data on inequality is provided in UNU-WIDER World Income Inequality Database (WIID) as Gini coefficients from different sources including Luxembourg Income were compiled in this data base. But the most comprehensive and cross country comparable income inequality data is provided in Standardized World Income Inequality Database (SWIID) compiled by Frederick Solt. The SWIID14 also provides Gini coefficient for gross and net income. Given that some researchers have argued that redistributive policies can affect the theoretical relationship between financial development and inequality (Jauch & Watzka, (2012) and Nwafor, (2015)), the SWIID provides the opportunity to examine the effect of financial development on both gross and net inequality. The effect may in fact differ as shown by Zielschost (2013).

From our extensive search and synthesis of the relevant literature, we provide some suggestive directions for future research. First, an obvious focus for future research is to increase the number of country specific studies. For instance, we have not seen any paper attempting to investigate the finance-inequality in any single African country. Majority of the papers reviewed are cross country and panel studies. In addition, these studies do not take into account the clear regional differences when investigating the finance-inequality nexus. Though most of these studies are unbiased and of sound methodology, generalization based on them cannot be as plausible as that from large number of country specific studies. Second, there is also need for future researchers to use a clean, comparable inequality data and state-of-the art econometric technique as that might have implications on the reliability of results of most studies, especially cross-sectional and panel ones (see for instance Zielschot, 2013 and Nikoloski, 2013). Third, the effect of redistributive policies on inequality should also be part and parcel of future research on finance-inequality nexus. In this aspect the inequality data, based on Gini index for gross and net income, provided as SWIID can be quite helpful, especially for cross country studies.

Fourth, there is need for more research on the effect of several dimensions of financial development – financial access, depth, efficiency, liberalization and stability – on income inequality. The existing literature is predominantly concentrated on employing proxies for financial depth while ignoring other dimensions of financial development (Clarke *et al.*, 2003, 2006; Beck *et al.*, 2004; Nikoloski, 2013; Kappel, 2010; Batuo, 2010; Zielschot, 2013;

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14 The SWIID contains more than 10, 000 Gini indices in over 2800 country-years in 174 countries.



Akbiyik, 2012; Ang, 2010; Bittencourt, 2006). Fifth, more studies on the effect of financial sector policies (such as bank deregulation and laws) on inequality would significantly contribute to our understanding on how the financial sector is linked with inequality<sup>15</sup>.

## V. CONCLUSION

Since the early 1990s, the relationship between financial development and income inequality has been hotly debated. On the theoretical side, Banerjee & Newman (1993) and Galor & Zeira (1993) put forth a theory suggesting a linear negative relationship between the two variables. In contrast, Greenwood & Jovanovic (1990) and Galor & Moav (2004) posit an inverted U-shaped relationship between those variables.

The present study provided a systematic review of the empirical literature on the finance-inequality nexus. We reviewed 31 research papers published as either article in peer-reviewed journal or as thesis or working paper. Out of these studies, majority of the papers indicated that financial development can significantly reduce income inequality. But there are others who have found no significant effect of finance on inequality, while some point to the evidence that the link between the two variables depends on the extent of a country's level of financial development. Findings from this work can in particular be useful in deciding the region of an economy that should be given priority in the allocation of financial intervention like the case of Nigeria where the rate of inequality among its geo-political zones are not the same and a seed money of N200billion is recently to be allocated for micro small and medium enterprises (MSMEs).

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## VII. APPENDIX

**Table 1:** Cross country and panel data studies on nexus between financial development and income inequality

Author & year	Number of countries & period covered	Variables	Method (s)	Findings
Beck <i>et al</i> (2007)	Seventy two countries, 1960-2005	Gini coefficient, income growth of the poor, private credit (% GDP)	Ordinary Least Squares (OLS)	Financial development not only boosts the growth rate of the income share of the poorest quintile, but also induces reduction in income inequality and a faster decline in poverty rates.
Jauch & Watzka (2012)	One hundred and thirty eight developed and developing countries, 1960-2008	Gini coefficient based on gross and net income, private credit (%GDP), bank deposits (% GDP)	OLS & Instrumental Variables (IV) estimation method	There is evidence of an inverted U-shaped relationship between financial development and inequality. Furthermore, financial development is positively related to income inequality.
Clarke <i>et al</i> (2003)	Ninety-one countries, 1960-1995	Gini coefficient, private credit (% GDP)	OLS	Financial development has a negative and linear effect on income inequality.
Clarke <i>et al</i> (2006)	Eighty-three countries, 1960-1995	Gini coefficient, private credit (%GDP)	OLS & random effects	There is negative and linear relationship between financial development and income inequality.
Hamori & Hashiguchi (2012)	One hundred and twenty six developed and developing countries, 1963-2002	Income inequality data, Private credit (% GDP), Broad money (% GDP)		Financial development has negative effect on income inequality, but economic growth reduces the “equalizing” effects of financial development overtime.
Kappel (2010)	Seventy-	Gini	OLS & 2SLS	Financial

	eight developed and developing countries, 1960-2006	coefficient, Private credit (% GDP), Stock market capitalization (% GDP)		development has negative and significant effect on poverty and income inequality, though private credit over the GDP has larger impact than stock market capitalization over GDP.
Batuo <i>et al</i> (2010)	Twenty-two African countries, 1990-2004	Gini coefficient, Broad money (% GDP), ratio of liquid liabilities (% GDP), private credit (% GDP)	Generalized Method of Moment (GMM)	Financial development has negative effect on income inequality. An increase in financial development by 1 percent reduced income inequality by roughly 0.02 and 0.05 percent.
Canavire-Bacareza and Rioja (2011)	Twenty-one Latin American countries (LAC), 1960-2005	Gini coefficient, income share of quintiles, private credit (% GDP)	GMM	Financial development in LAC improves income of those in the middle income range (second through fourth quintiles), with no effect on the income of the poorest quintile. There is some evidence of inverted U-shaped hypothesis.
Zielschot (2013)	Seventy-two countries, 1960-2005	Gini coefficient of gross and net income, income share of quintiles, private credit (% GDP)	OLS	Financial development has positive effect on the growth rate of income of the poorest quintile, while a negative effect one on the growth rate of the income of the richest quintile.
Seven and Coskun (2016)	Forty-five emerging markets, 1987-2011	Three proxies for financial development developed using PCA,	GMM	Financial development has no substantial benefits for those in low-income groups.

Akbiyik (2012)	Sixty developed and developing countries, 2000-2010	Gini coefficient, Financial development index by WEF	GMM	Financial development reduces income inequality irrespective of the degree of development of a country.
Mansour & Wendel (2015)	East Asian countries, 1960-2012	Gini coefficient, private credit (% GDP)	OLS	Financial development reduces income inequality up to a certain threshold beyond which it raises inequality. That is, there is U-shape relationship between financial development and inequality.
Kim & Lin (2011)	Fifty-three high, middle and low income countries	Growth of Gini coefficient, private credit (% GDP), liquid liabilities (% GDP), Bank assets (% GDP), stock market capitalization (% GDP)	GMM	There is a nonlinear effect of financial development on income inequality. First, financial development has positive effect on inequality, but after certain threshold of financial deepening, it has negative effect on inequality.
Mookerjee & Kalipioni (2010)	Sixty-five developed and developing countries, 2000-2005	Gini coefficient, number of bank branches per 100, 000 people	OLS & IV regression	Greater access to finance improves income distribution.
Nikoloski (2013)	Developed and developing countries, 1962-2006	Gini coefficient, private credit (% GDP), bank assets (% GDP)	GMM	There is an inverted-U shaped relationship between financial development and income inequality, i.e. financial development increases inequality, but reduces it after a certain threshold.

Nwafor (2015)	Ninety-one high, middle and low income countries, 1994-2009	Gini coefficient of gross and net income, income share of top 1%, private credit (% GDP), bank deposit (% GDP), stock market capitalization (% GDP)	GMM	There is inequality reducing effect of financial development across all country groups. In addition, the study shows that financial development reduces income share of the top 1% up to certain level beyond which it disproportionately increases the income share of the top 1%.
Blau (2015)	Two hundred and thirteen countries, 1960-2014	Gini coefficient, stock market capitalization (% GDP), turnover ratio (% GDP), private credit (% GDP)	OLS	Stock market development is negatively related with income inequality. Income share of the poorest quintile is positively related to stock market development, while income share of richest quintile is negatively related.
Gimet & Lagoarde-Segot (2011)	Forty-nine countries, 1994-2002	Gini coefficient, private credit (% GDP), stockmarket capitalization (% GDP), turnover ratio (% GDP)	OLS & Bayesian SVAR model	Financial development has significant negative effect on income inequality, with banking sector having stronger impact.
Fowowe & Abidoeye (2013)	African countries	Gini coefficient, private credit (% GDP), broad money (GDP)	GMM	Financial development has not significantly reduced income inequality across African countries.

Park & Shin (2015)	One hundred and sixty-two countries, 1960-2011	Gini coefficient for gross and net income, income share of the richest 1%, private credit (% GDP), stock market capitalization (%GDP)	OLS	There is a U-shaped relationship between financial development and income inequality, i.e. initially financial development reduces inequality up to certain level before it starts to aggravate it.
Naceur & Zhang (2016)	One hundred and forty-three countries	Gini coefficient, private credit (% GDP) and other proxies <sup>16</sup>	OLS & IV regression	Most financial development dimensions reduce income inequality, except financial liberalization.

**Source:** Authors' reviews of relevant studies on financial development and income inequality.

**Table 2:** Country specific studies on the nexus between financial development and income inequality

Author & year	Country & period covered	Variables	Method (s)	Findings
Liang (2006)	Urban China, 1986-2002	China urban Gini coefficient, private credit (% GDP)	Generalized Method of Moment (GMM)	Chinese urban provinces with more developed financial sectors have lower income inequality.
Liang (2008)	Rural China, 1991-2000	Chinese rural Gini coefficient, ratio of rural loans to rural GDP		Rural financial development significantly reduces income inequality in China rural areas.

<sup>16</sup>private credit (%GDP), stock market capitalization (% GDP), stock market turnover ratio, ratio of regulatory capital to risk weighted assets, volatility of stock price index, domestic liberalization and external liberalization.

Shahbaz & Islam (2011)	Pakistan, 1971-2005	Gini coefficient, private credit (%GDP),	Autoregressive Distributer Lag (ARDL)	Expansion of financial activities reduces income inequality and poverty in Pakistan.
Bittencourt (2006)	Brazil, 1985-1999	Gini coefficient, income share of quintiles, private credit (% GDP), broad money (% GDP)	Pooled Ordinary Least Squares (POLS)& Instrumental Variables (IV) regression	Financial development has negative and significant effect on income inequality in Brazil during the sample period.
Law & Tan (2009)	Malaysia, 1980-2000	Gini coefficient, private credit (% GDP), stock market capitalization (% GDP)	ARDL	Financial development has not reduced income inequality in Malaysia.
Baligh & Pirae (2013)	Iran, 1973-2010	Private credit (% GDP), broad money (% GDP),		Financial development has negative effect on income inequality in Iran.
Ang (2010)	India, 1951-2004	Private credit (% GDP), net broad money (% GDP), commercial bank assets to sum of commercial and central bank assets	ECM & ARDL	Financial development (as measured by private credit) has negative effect on inequality, but stock market development has no statistically significant effect on inequality.
Hoi & Hoi (2012)	Vietnam (59 provinces and cities, 2002-2008)	Gini coefficient	Fixed and random effects	There is evidence that financial development has significant negative effect on income inequality in Vietnam.
Wahid <i>et al</i> (2012)	Bangladesh, 1985-2006	Gini coefficient, private credit (% GDP)	ARDL	Financial development increases income inequality. Inequality is worsened by 0.17% for every 1% increase in credit to the private sector



**Source:** Authors' reviews of relevant studies on financial development and income inequality.

## DOES DISPENSING OF LARGE CURRENCY DENOMINATIONS BY ATMS HURT SMALL BUSINESSES; A MICRO EVIDENCE FROM SAMARU-ZARIA

Ada Tony Odu

*Department of Economics, Ahmadu Bello University, Zaria, Nigeria.*

[oduadatony@gmail.com](mailto:oduadatony@gmail.com)

+2347069293795

### ABSTRACT

This paper examines the impact of the scarcity of smaller currency denominations on the gains of money divisibility enjoyed by micro-businesses and consumers in Nigeria. To achieve the objectives of this paper, two supply side surveys were carried out on businesses at different periods within the year (April and December) while a demand side survey was carried out on consumers in the Samaru community. The results of the supply side surveys indicated that the scarcity of smaller currency denominations resulted in varying levels of reduction in revenues of businesses depending on the nature of the business with an average of 5% daily revenue loss for all businesses. The findings of the survey on consumers concluded that scarcity of smaller currency denominations results in a fall in standard of living. This paper recommends the inclusion of small to medium currency denominations in ATMs and use of ATMs which can be configured to dispense cash in different denominations where unavailable.

**Key words;** MSMEs, Automated Teller Machines (ATMs), Micro-businesses, Currency Denominations.

**JEL classification;** M13, O31.

### INTRODUCTION

Nigeria's objective of attaining full employment via inclusive growth has stimulated the promotion of entrepreneurial development programs and agencies to enhance the establishment of Micro, Small and Medium scale Enterprises (MSMEs). This policy direction of the government is not unfounded as studies reveal that MSMEs account for over 55% of GDP and over 65% of total employment in high income countries, 60% of GDP and over 70% of total employment in low income countries, while they contribute about 70% of GDP and 95% of total employment in middle income countries (MSME Survey, 2010). MSMEs are characterized by innovation, dynamism and efficiency due to their size while they possess the advantage of promoting employment generation, use of local raw materials and technology and reduction in income inequalities. The 2010 MSME collaborative report revealed that MSMEs accounted for 46.54% of the Nigerian GDP in 2010, employing about 32,414,884 individuals while the 2013 survey reveals a 48.47% GDP contribution and 84% contribution to employment. The sector has enormous potentials to be the driver of growth, development, industrialization, poverty reduction and employment generation if properly supported and managed (Ngwu, 2005). Certain factors however mitigate the fruition of the prospects of the MSME sector some of which include; management, weak infrastructure,

access to finance, inconsistent government policies, unfair competition, obsolete technology etc. (MSME survey, 2010).

Micro-enterprises which are defined by the National policy on MSMEs to employ less than 10 individuals, with asset base valued at less than #5 million, accounted for 99.87% (17,261,753) of the total Nigerian MSMEs (17,284,761) in 2010 while small and medium enterprises accounted for 0.12% (21,264) and 0.0096% (1,6540) respectively. In 2013, Micro-enterprises accounted for 99.81% (36,994,578) of the of the total MSMEs (37,067,417) while small and medium enterprises accounted for 0.18% and 0.01% respectively. These Micro-enterprises depend on smaller currency denominations for their operations as they usually trade low priced essential commodities and services ranging from beverages and groceries to haircuts and transportation. Consequently, any interruption in the supply of these smaller currency denominations despite the efforts of the government to ensure the viability of these micro-businesses would be detrimental to their survival.

Amromin and Chakravorti (2008) posited that amid falling demand for small currency denominations due to extensive acceptability of cash alternatives (E payment systems), the existing demand results from small merchants for making change. The technological advancements in the banking sector has led to the wide spread adoption of E payment (electronic payment) systems world over such as Automated Teller Machines (ATMs), Point of Sale (POS) machines, E banking etc, (Adewoye and Omoregie, 2013). In Nigeria, the ATM is the most patronized E banking platform, accounting for about 98.09% of the E payments in Nigeria in 2011 according to the CBN report of 2011. World-wide, ATMs normally dispense medium to large currency denominations (Amromin and Chakravorti, 2008), Nigerian studies however reveal that ATMs predominantly dispense large currency denominations (Asikaogu and Mbegbu, 2012). This tendency of ATMs dispensing only large currency denominations significantly contributes to the scarcity of smaller currency denominations according to reports from England (Bailey, 2009), Israel (Bank of Israel, 2012) and Nigeria (Odu, 2016). A News Agency of Nigeria Report on 4<sup>th</sup> February, 2014, also purports that the dispensing of only larger currency denominations by ATMs has resulted in the scarcity of smaller currency denominations in Nigerian cities, however, the rationale behind this proposition was not stated. The News Agency of Nigeria article went further to ascribe the fall in incomes of micro-businesses to the scarcity of smaller currency denominations.

In light of these developments and the precarious nature of Nigerian MSMEs, it is imperative to find out whether the dispensing of large currency denominations by ATMs hurt micro-businesses and to determine the extent of the fall in revenue, and also to assess its impact on living standards of consumers. This will enable the monetary authorities to have appropriate information when analysing policy options.

The next section of this paper, conceptualizes currency denominations and reviews some relevant literature while section 3 presents the methodology adopted. Section 4 presents and interpretes the results while the final section concludes the paper.

## **2. LITERATURE REVIEW**

### **Currency Denominations**

This paper defines currency denominations as the different units of a country's currency accepted as legal tender, of which Nigeria has eight viz.; #5, #10, #20, #50, #100, #200, #500, #1000. We therefore conceptualize large currency denominations as amounts usually dispensed by ATMs; #1000 and #500. Small currency denominations refer to currency units such as #5, #10, #20, and #50 which are too small to be dispensed by ATMs due to efficiency factors. Medium currency denominations refer to those units which are larger than the small units but are rarely dispensed by ATMs, such as #100 and #200.

### **Determinants of Currency Composition in Circulation**

The literature reveals that supply and demand factors determine the composition of money in circulation. The demand factors include the acceptability of cash substitutes (checks, debit cards etc) for transactionary purposes and the use of cash as store of value due to low interest rates and income level etc (Baumol-Tobin model, cited in Amromin and Chakravorti (2008)). In relation to the money supply, the legal restrictions conferred on the Central Banks, give them the monopoly to control the quantity and composition of money supply (Mankiw, 2010).

## **THEORETICAL REVIEW**

### **The Quantity Theory of Money**

Given that the scarcity of lower currency denominations reduces the frequency of use of available notes due to rejection of large denominations for low priced transactions and hoarding of lower denominations to be used for essential transactions, the fall in frequency can be viewed as lower velocity of money. Thus, the Monetarist equation of exchange applies.

The equation is stated as follows;

$$MV=PQ \quad (2.1)$$

Where M is the supply of money, V is the velocity of money, P is the price level and Q is the volume of all goods and services produced.

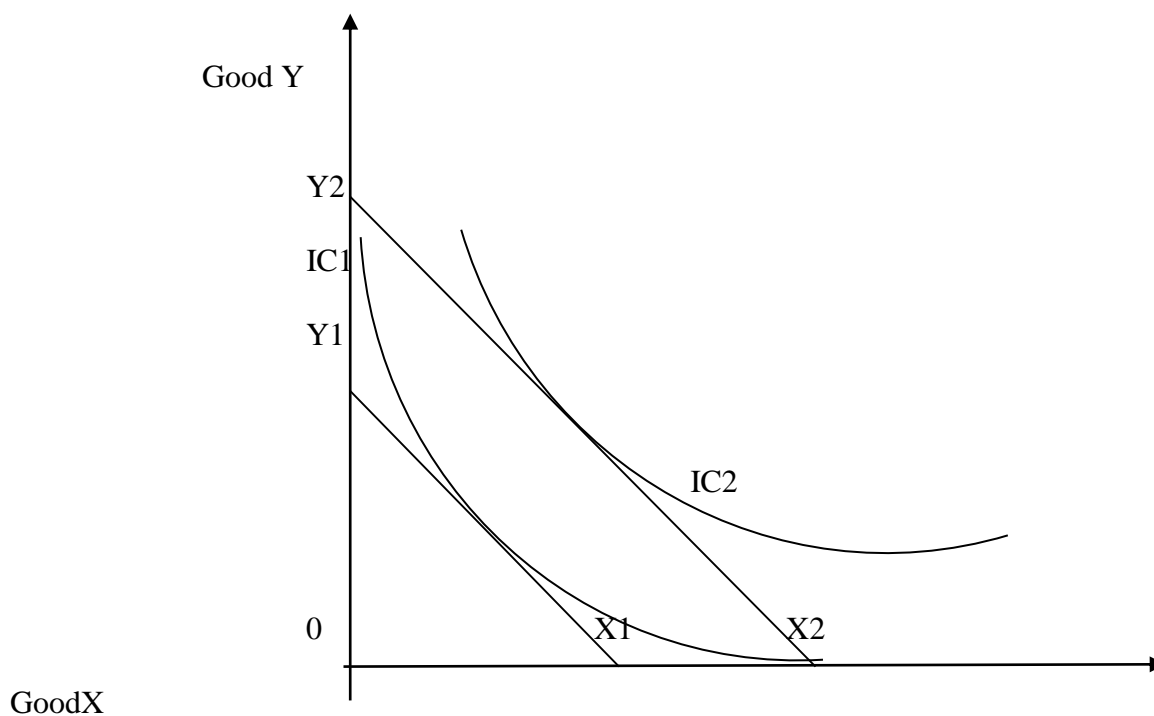
The monetarists posit that increasing money supply (M) pushes AD (Aggregate Demand) up by increasing the spending of both businesses and households on investment and consumption respectively. This process leads to an increase in the level of business revenues and national income. However, when the money supply (M) is constant, a change in V causes a direct change in PQ (total output) (Samuelson and Nordhaus, 2001). When the economy is operating at maximum capacity, a rise in V causes a rise in P, and if the level of unemployment is above the natural rate so that Q (total amount of output) can increase, a rise in V would lead to a rise in P and Q. This is because an increase in V would leave the public with more money than desired and they will react by spending more on consumption and investment. This increases the level of AD ultimately resulting to the increase in GDP. Conversely a fall in V results in lower incomes for economic agents, as a result, their

consumption and investment spending reduces, thereby reducing AD. This fall in AD leads to lower revenues for businesses and lower output levels (Samuelson and Nordhaus, 2001).

### Consumer Welfare Analysis

At the consumers current level of income, his budget line  $X_2Y_2$  is tangential to indifference curve  $IC_2$  but due to scarcity of smaller currency denominations, he is unable to purchase commodities so priced on that indifference curve. He is therefore forced to desist from consuming the commodities he desired consequently reducing his welfare.

Fig 1; Indifference Curve Analysis



### Empirical Review

The studies reviewed below highlighted the common trends in ATM operations world-wide in relation to how the dispensing of larger currency denominations results in the scarcity of smaller currencies also presenting the results of surveys on the impact of this phenomenon on business operations.

Bailey (2009) considered the significance of the recent trends in banknote circulation on the future of cash. He examined how the value of banknotes in circulation continually rises with evidence suggesting that banknotes use as payment mechanism declines gently, a phenomenon he termed the apparent paradox of banknotes.

In the 1<sup>st</sup> part of his speech, the trend analysis revealed that the value of Bank of England notes in circulation has been growing over the last 40 years largely due to the £20 denomination. He further stated that 70% of cash withdrawals in the UK were accounted for by ATMs as opposed to the 1990 figure of 25%, with most withdrawals in denominations exceeding £5. The total volume of cash transactions fell from 80% in the mid 80's to 60% in 2009, with cash accounting for 9% of retail transactions in the 1990's whereas that figure fell to 4% in 2009. He noted that cash is predominantly used for small value transactions with 93% of all payments under £5 made in cash. Bailey (2009), also stated that the central bank had difficulty getting the £5 banknotes into circulation as only few ATMs dispensed them and the quantity eventually circulated stayed longer than other denominations, hence becoming mutilated.

The results of two pilot surveys were presented, the first of which a major bank was asked to stock a proportion of its ATMs with £5 banknotes and examine the effect on its cash business. The survey resulted in higher profits than expected for the bank. The second survey involved supplying a major super market more £5 notes to use as change, which resulted in speeding up transactions and the initiative being welcomed by customers.

Bailey (2009), recommended that a financial-commercial sector partnership be struck to ensure that the public's demand for a balanced denomination mix is met, also supporting an increment in the number of ATMs dispensing £5 notes.

The Bank of Israel, Currency Department 2012 Annual Report notes that the proportion of banknotes in circulation has increased at the expense of proportion of coins, with banknotes accounting for 97% of the total cash transactions in 2012. This increase in banknotes circulation is attributed to their demand for transactionary purposes and store of value purposes due to the low interest rates. The report also credits increased value and quantity of banknotes in circulation to the large scale integration of NIS 200 notes into ATM machines.

The report further indicates that the denomination mix of banknotes in ATM machines is a major determinant of the composition of banknotes in circulation, with ATM withdrawals accounting for 36% of the total value of withdrawals from commercial banks in 2012.

The report states that the NIS 200 notes peaked in 2011 as the largest number of banknotes in circulation at 41% (43% in 2012) at the expense of lower notes with NIS 100 at 38% (36% in 2012), NIS 50 at 12% (13% in 2012) and NIS 20 at 9% (8% in 2012). This is because the machine operators stocked their ATMs with higher banknotes in order to reduce costs (in terms of shipping and handling of notes) and to reduce the frequency at which the machines are refilled.

A survey by the currency department in 2012 reported that only 4% of the ATMs dispense NIS20 notes while 30% dispense the NIS 50 notes, 35% dispense the NIS100 notes and 32% dispense the NIS200 notes.

Another survey by Meida Shivuki CI institute revealed that the scarcity of the lower denominations are most felt by the customers making cash payments and merchants

providing change. The survey shows that 2/3 of the public would like lower denominations (NIS20 and NIS50) integrated into ATMs.

Amromin and Chakravorti (2008), examined the rationale behind the high stock of cash in circulation despite the extensive adoption of cash alternatives. To achieve this objective, they separated the store of value function of money from its transactional role, further categorising currency into small, medium and large denominations. The large denominations are used primarily as store of wealth and are larger than those commonly dispensed by ATMs on the other hand denominations lower than those dispensed by ATMs were classified as small and used for transactionary purposes. They posit that the demand for small currency denomination predominantly results from small merchants as they are used for making change and also due to their inability to incur the high fixed cost of operating electronic payment terminals. The data set used for their paper was drawn from 13 OECD countries spanning the period 1988-2003.

The second section of their paper illustrates the common trends among the sampled countries during the period understudied; (a) growth in debit card usage during the 1990's (b) general increase in use of electronic payments (c) no reduction in cash stock despite growing acceptance of cash substitutes.

The findings of their study revealed that greater usage of cash alternatives and retail market consolidation has a negative relationship with the demand for small denomination currency. However, the demand for higher currency denominations is negatively related to interest rate and is unaffected by debit card usage.

### 3. METHODOLOGY

In order to achieve the objectives of this study, field surveys were carried out in Samaru, a settlement in Sabon-gari LGA of Kaduna State to find out if the scarcity of lower denominations of currency results in reduced business transactions for micro-businesses and to ascertain the extent of the fall in transactions. The field surveys were divided into two parts, the supply side (businesses) survey was carried out to achieve the first and second objective and the demand side survey (consumers) was carried out to achieve the third objective.

The hypotheses of the supply side survey are stated below.

$H_0$  : Scarcity of smaller currency denominations has no significant impact on incomes of micro-businesses.

$H_1$  : Scarcity of smaller currency denominations has a significant impact on incomes of micro-businesses.

In relation to the demand side analysis, members of the Samaru community were asked to estimate how many transactions per day they refrained from due to lack of smaller currency denominations, to find out whether it affects living standards of consumers.

In the supply side survey, different micro-businesses were assessed to find out if they encountered challenges due to the scarcity of smaller currencies. To ensure robustness of



results, two surveys were carried out on different businesses at different times of the year (survey 1- March/April, survey 2- November/December) .Employing the random sampling method, the interview method was used to ask the business owners the following questions:

- a. Do you encounter problems due to the scarcity of smaller currency denominations?
- b. If yes, how do you overcome this challenge?
- c. How many customers per day do you lose on the average due to lack of smaller currency denominations?
- d. What percentage of your daily revenue is lost due to scarcity of smaller currency denominations (How much do you earn per day when there is abundance of smaller currency denominations and how much do you earn when it is in short supply)?

To assess the impact of the scarcity of smaller currency denominations on micro-businesses, the chi-square method was augmented to descriptive statistics to test the hypotheses posed.

The data used in this paper was acquired from primary sources, which comprised of randomly selected business owners in the A.B.U main campus and Samaru town for the supply side survey. In relation the demand side survey, randomly selected members of the A.B.U community and Samaru town were interviewed. The data obtained from the field survey were analysed using the Statistical Package for Social Sciences (SPSS).

#### 4. PRESENTATION OF RESULTS AND DATA ANALYSIS

In relation to the supply side survey, 51 business owners were approached, 43 responded and the results of the survey are discussed below.

Table 4.1 below shows the summary of the results of the chi-square test, the hypothesis and the decision rule, note that all chi-square values in the table below are stated at 5% level of significance. (For SPSS chi-square tables, see appendix.) From Table 4.1, using both measures of incomes for micro-businesses, the null hypotheses are rejected indicating that scarcity of smaller currency denominations significantly affects incomes of micro-businesses.

Table 4.1 Summary of Test of Hypotheses.

Variables cross-tabulated	DF	X <sup>2</sup> -cal	X <sup>2</sup> -tab	Decision Rule
Type of business and Customers lost	24	36.73	13.8	Reject null
Type of business and Revenue Lost	24	25.66	13.8	Reject null

The 43 respondents in surveys 1 and 2 are grouped into 9 distinct businesses and Table 4.2 below reveals that all the respondents encountered varying amount of losses in relation to number of transactions and fall in revenue due to scarcity of smaller denominations.

Table 4.2 Extent of Losses Incurred  
SURVEY 1

SURVEY 2

Business type	Number of respondents	Average number of customers lost	Average revenue lost (%)	Business type	Number of respondents	Average number of customers lost	Average revenue lost (%)
Recharge Card Vendor	8	63	54.48	Recharge Card Vendor	3	23	12.5
Provision store	7	25	28.14	Provision store	7	15	16
Motorcyclist	6	6	31.13	Popcorn retailer	1	15	10
Barber	2	3	10	Printers	4	7	10
Restaurant	2	5	24				
Patent Medicine Store	2	16	12.5				
Black Market kerosene seller	1	3	7				
Average		4.32	6.19	Average		4	3.73

Table 4.2 above reveals that micro-businesses in Samaru averagely lose 4 customers per day and 5% of their daily revenues across both periods surveyed. In relation to the specific analysis, the recharge card vendors are worst off with an average loss of 33.49% of their daily revenue.

The survey also revealed that certain business owners have tried to devise means of combating this scarcity of smaller currency denominations by writing down names of customers who they owe and the amount owed to be received later when the smaller currencies are available. But this method is only feasible where buyers and sellers are well acquainted with each other.

In relation to the demand side survey (consumers), the responses averaged at 3, as the number of times per day respondents refrained from transactions due to scarcity of smaller currency denominations. Since most of the members of the Samaru community are low to middle income earners, the bulk of their transactions on necessities are performed with small to medium currencies. The scarcity of these small currency denominations results in a fall in their standard of living as they are forced to refrain from consuming certain necessities (services included).

### 5. SUMMARY AND CONCLUSION

The objectives of this paper are to examine the impacts of scarcity of smaller currency denominations on micro-businesses and consumer welfare in Nigeria. To achieve these

objectives, two types of survey were conducted, using Samaru as a case study; the supply side survey was carried out to determine whether scarcity of smaller currency denominations resulted in fall in incomes of micro-businesses and to determine the extent of the fall. The demand side survey was carried out to find out whether scarcity of smaller denominations resulted in a fall in living standards of Nigerian consumers. The supply side survey made use of simple random sampling method to get the required information from 51 different businesses through the interview method. The demand side survey also made use of simple random sampling method to get information from respondents via interview method.

The findings of this paper indicate that scarcity of smaller currency denominations results in lower revenues for micro-businesses whereas the extent of fall in revenue depends on business type. The scarcity of smaller currency denominations also leads to fall in standard of living as consumers are forced to refrain from certain necessary transactions.

From the findings of this paper, the following recommendations are hereby put forward:

- a. Inclusion of other currency denominations (#500 and #200) in ATMs and compulsory use of ATMs which can be configured to dispense different denominations where unavailable.
- b. Inclusion of a certain minimum percentage of smaller currency denominations in withdrawals done over the counter of commercial banks.
- c. Increased printing of smaller currency denominations (smaller currencies should have a larger proportion in constituting total money supply in relation to larger denominations).

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## APPENDIX

Table 1a Number of customers Lost by Each Business

**Type of Business \* Customers lost Crosstabulation**  
Count

		Customers lost					Total
		0-5	6-10	11-20	21-50	51-100	
Type of Business	Recharge card seller	0	0	1	2	5	8
	Restaurant	1	1	0	0	0	2
	Provision store	0	1	4	1	1	7
	Barber shop	1	0	1	0	0	2
	Patent medicine store	0	0	1	1	0	2
	Motorcyclist	4	2	0	0	0	6
	Black market fuel dealer	1	0	0	0	0	1
Total		7	4	7	4	6	28

Table 1b Chi-Square Results for Number Of Customers Lost

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	36.726 <sup>a</sup>	24	.047
Likelihood Ratio	41.924	24	.013
Linear-by-Linear Association	13.877	1	.000
N of Valid Cases	28		

a. 35 cells (100.0%) have expected count less than 5. The minimum expected count is .14.

Table 2a Percentage of Revenue Lost By Each Business

**Type of Business \* Percentage of Revenue lost Crosstabulation**

Count

		Percentage of Revenue lost					Total
		0-15	16-30	31-45	46-60	61-75	
Type of Business	Recharge card seller	0	1	1	3	3	8
	Restaurant	1	0	1	0	0	2
	Provision store	2	2	2	1	0	7
	Barber shop	1	0	0	0	0	1
	Patent medicine store	1	1	0	0	0	2
	Motorcyclist	0	3	1	2	0	6
	Black market fuel dealer	1	0	0	0	0	1
Total		6	7	5	6	3	27

Table 2b Chi-Square Results for Percentage Of Revenue Lost

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
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Pearson Chi-Square	25.663 <sup>a</sup>	24	.370
Likelihood Ratio	28.349	24	.246
Linear-by-Linear Association	4.711	1	.030
N of Valid Cases	27		

a. 35 cells (100.0%) have expected count less than 5. The minimum expected count is .11.

## INCOME INEQUALITY AND ECONOMIC DEVELOPMENT IN NIGERIA

Makyur Regina Mlumun & Gylych Jelilov, Ph.D.

### ABSTRACT

*Income inequality has posed a serious problem by widening the gap between the rich and poor in Nigerian economy and other developing countries. Many policies such as Poverty alleviation programmes and economic growth have not been able to close the gap between the rich and the poor in the country. This study therefore used a Lorenz curve and Gini coefficient approach to see the trend of income inequality in Nigeria over the span of 10 years. The findings of the study support the need for government to formulate policies targeting at improving the income of the junior workers in order to minimize income disparity. By carrying out descriptive analysis, the study found that there is a high incidence of income inequality in Nigeria which is detrimental to economic growth. The findings support the need for government to formulate policies targeting at improving the welfare of the poor and those that provide employment and improve the lot of low-paid workers.*

### 1. INTRODUCTION

Every country seeks to attain sustainable development which should encompass all aspects of the economy. However most economist measure development in terms of GDP level which on its own is not a proper measure. This is so because it does not take into cognisance the welfare of the citizens –whether they are worse off or better off with an increase in GDP. In most third world countries today, the GDP level is high but instead of alleviating poverty, what is common is a worsening of the poverty situation.

In a country like Nigeria, GDP has increased over the years which should have meant a better standard of living, however about 85% of population live in abject poverty with just 15% holding most of the country's wealth. This is a bad case of income inequality suffered by not only Nigeria but many other developing countries.

Income inequality is described as the unequal distribution of household or individual income across the various sectors or participants in an economy. It is often presented as the percentage of income to a percentage of population and is associated with the idea of income fairness. It is generally considered "unfair" if the rich have a disproportionately larger portion of a country's income compared to their population (investopedia, 2016).

Looking at income inequality from another perspective, Nobel Prize winner Simon Kuznets in the 1950's hypnotized that income inequality was a natural occurrence as a result of a country in a transitional stage with emphasis on the economy moving from a rural/agricultural economy to an urban/industrial economy. He believed that poor countries experiencing income inequality were in a transitional stage that would reverse itself once the economy becomes more economically developed . Explaining further Kuznets says that as a society becomes industrialized, the center of the economy shifts from rural areas to the cities as rural labourers such as farmers begin to migrate seeking better-paying jobs. This



migration, however, results in a large rural-urban income gap and rural populations decrease as urban populations increase. But that same economic inequality is expected to decrease when a certain level of average income is reached and the processes associated with industrialization, such as democratization and the development of a welfare state, take hold. It is at this point in economic development that society is meant to benefit from trickle-down effect and an increase of per-capita income that effectively decreases economic inequality. He believed that inequality would follow an inverted “U” shape as it rises and then falls again with the increase of income per-capita. Although his theory has been criticized it is still a foundation and reference for many income inequality theories and researches.

To measure income inequality in a country and compare this phenomenon among Countries more accurately, economists use Lorenz curves and Gini indexes. A Lorenz curve plots the cumulative percentages of total income received against the cumulative percentages of recipients, starting with the poorest individual or household. The Gini coefficient is a statistical measure of inequality which has been applied to national income distributions to measure income inequality in countries. It gives a 0 to a perfectly equal distribution and 1 to a perfectly unequal distribution while the Gini index is the Gini coefficient expressed as a percentage. For example, if one country’s Gini index is 24.23percent, it means that its Gini coefficient is 0.242 which is pretty close to income equality. According to Yetunde (2013) Nigeria falls within the Gini index ratio of 0.50 to 0.70 which tends towards 1 and shows income inequality while the countries with relatively equitable distributions have their Gini coefficient between 0.20 and 0.35. South Africa has been declared as the country with the highest income disparity in the world with a Gini index ratio of 0.65 (Euro monitor international 2011 as sited in yetunde, (2013). Income inequality has remained a bone of contention among developing countries and indeed some developed countries.

## **2. REVIEW OF LITERATURE**

### **1. Conceptual framework.**

As stated above, Income inequality is described as the unequal distribution of household or individual income across the various sectors or participants in an economy. Graham (1995) as cited in yetunde (2013) viewed income inequality as a line demarcating the rich and the poor. The low income group is characterized by poverty, poor health care, unstable jobs, low level of education, while the high income group is characterized by adequate health care, literacy (adequate education attainment). The middle group shares those characteristics between the low and higher income group.

Further explaining the effect of inequality on the low income group, Boushey and Price (2014) opinioned that inequality may suppress the ability of some talented but less privileged individuals to access opportunities or credit, dampen demand, create instabilities, and undermine incentives to work hard, all of which may reduce economic growth. Growing inequality could also create a relatively larger group of low-income individuals who are unable to invest in their health, education, and training, thereby retarding economic growth.

### **2. Theoretical framework.**

There are many school of thoughts that have their opinion about income inequality. The classical school of thought were in favour of income inequality. They believed that income equality discourages savings and it meant a higher income for the working classes and a rise in their consumption. This situation made the workers comfortable and it increased the population. The classicals therefore, believed that inequalities of incomes were necessary to provide the incentives for economic growth.

The Keynesian economist's on the other hand pleaded for income equality to sustain economic growth. According to Keynes, a society which saves more due to inequalities of income and wealth brings secular stagnation, because inequalities would reduce its consumption capacity and bring contraction in demand. Ultimately, it would lead to fall in production and slowing down the economic activity. Keynes, therefore, favored income equality which might lead to sustained economic growth via the multiplier effect.

The Marxian also supported this claim. According to them, it was income inequality that would bring the doom of capitalism. Marx argued that income inequality meant less consumption for the poor masses. This would automatically lead to unsold stocks of goods and to a stop of further production. In this way these would be cumulative over-production and under consumption and the capitalist economy would move towards secular stagnations.

Later on in the 1950's, Kuznet propounded the u- shaped analysis, where he said that income inequality is a necessary and natural occurrence that happens due to technological advancement. He explained on the experience of the developed countries that historically there was a tendency for income inequalities to increase first, and then to be reduced as countries developed from a low level. Accordingly, it was believed that a high degree of inequality in the distribution of income had a favourable effect on economic growth in the early stages of development and as development gained momentum; its benefit would automatically "trickle down" to the lower income groups over the long run. So this approach emphasized the maximization of the growth rate of the economy by building up capital, infrastructure and productive capacity of the economy, and leaving the income distribution untouched.

### **3. Empirical literature.**

Research have been carried out to analyze the effect of income inequality on economies , the effectiveness of policies on alleviating poverty which is tied to income inequality. Bakare (2012) used standard traditional measurement approach: the Lorenz Curve and Gini Co-efficient to determine the size of income inequality and ordinary least square simple regression method to analyze the basic determinant of income inequality in Nigeria. He discovered that the Gini co-efficient of Nigeria lies between 46 and 60 percent which is a high level of income inequality. The regression result showed that 1 percent increase in the literacy rate increase the Gini coefficient by 3 percent meaning that there is higher disparity in the income distribution in Nigeria with increase in literacy rate. His findings support the need for the government to formulate policies targeting at improving the welfare of the poor and those that provide employment and improve the lot of low-paid workers.

Still on alleviating poverty, Osahon and Osarobo (2011) empirically accessed the relationship between poverty, income distribution and the growth of the Nigerian economy by using a co-integration technique to test for the unit root and the error correction mechanism (ECM). The Real Gross Domestic product was regressed on Private Consumption Expenditure, Per Capita Income, Registered Unemployment, and Government Expenditure on Health and Education, from the findings, the authors recommended that, for there to be sustainable improvements in the economy, the government at all levels should, amongst others, focus more on the development of essential social services for easier access to education, health, transportation and financial services. This should be complemented by executing relevant development programmes that will boost the income level of the poor, which is desirable for both income redistribution and poverty.

Finding about the causality effect between poverty and income inequality Nwamaka, Ogbeide and Onyinyechi (2015) adopted Granger causality techniques, their findings showed clearly that there is a very high level of poverty and inequality in Nigeria and that there is a feedback causality effect between inequality and poverty in Nigeria. The result of the study further showed that unemployment and life expectancy rate causes inequality while there is no causality between poverty and unemployment in Nigeria. Thus there is a direct link between poverty and inequality as well as an indirect link between them through unemployment causing inequality and inequality causing poverty. It recommends that employment should be one of the major tools to be considered in the fight against poverty and inequality in Nigeria.

Aigbokhan (2000) investigated the inequality and poverty profile in Nigeria during the period 1985-1997 using the food energy intake (FEI) method, a variant of the absolute poverty approach. The study found evidence of worsening inequality and poverty in spite of economic growth. It was found also that male-headed households seem to have fared worse, and that poverty is more pronounced in rural areas and in the northern regions (zones). The poor policy stance during the period is found to have contributed to increased poverty. The study found also that there was positive real growth throughout the period studied, yet poverty and inequality worsened. This suggests that the so-called "trickle down phenomenon, underlying the view that growth improves poverty and inequality, is not supported by the data sets used. This may well be due to the nature of growth pursued and the macroeconomic policies that underlie it. For example, there was generally deterioration in the macroeconomic policy stance, which nonetheless produced growth. If the relatively more impressive growth of the economy in 1986-1992 could not yield an improvement in poverty, it is not surprising that the relatively lower growth in 1993- 1996 could not yield a better poverty profile. This may be because much of the growth is driven by the oil and mining sectors. Proferring solutions to improve the poverty situation in the country the findings suggest areas where attention needs to be focused. One such area is to ensure consistency, rather than reversal, in policies. Policies should also be conscious of the need to ensure use of the main assets owned by the poor. Another area is in the distribution of income. Polarization in distribution appears to contribute to increased poverty.

Nuruddeen and Ibrahim (2014) used bound testing approach to cointegration and Granger causality test to determine the relationship between poverty, inequality and economic growth in Nigeria. A secondary time series data were used in the study from 2000 to 2012, the result showed that there is a unidirectional causal relationship running from RGDP to poverty,

which means that an increase in GDP in Nigeria causes high level of poverty. In addition, the result revealed that the RGDP Granger causes the literacy level without a feedback. The result further infers that the bidirectional causal relationship existed between literacy and poverty. The paper also indicated that population growth Granger causes literacy without feedback while unidirectional causality exists between poverty and population. The policy implication is that demand management policies aimed at reducing the gap between rich and poor should be vigorously pursued in order to minimise the rate of lingering inequality in the country and spur institutional change that will bring about betterment of people in the country. More so, concerted effort is needed to strengthen small and medium enterprises through tax holiday, access to finance and temporal protection so that more employment would be generated which in turn will reduce poverty and inequality.

#### 4. Methodology

This study focuses on the Nigerian economy as it has interesting income inequality history. The research design adopted for this work is the descriptive research design. The descriptive design enables us to use graph, charts and diagrams to describe the data. In this study we use Lorenz curve and Gini-coefficient to explain the extent of income disparity in Nigeria.

**Gini index** measures the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution. A **Lorenz curve** plots the cumulative percentages of total income received against the cumulative number of recipients, starting with the poorest individual or household. The Gini index measures the area between the Lorenz curve and a hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line. Thus a Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality.

#### Population of the Study

The study will cover Nigeria data from the years 1990 to 2000 which is a period of ten (10) years. This period is appropriate because it captures the transition period during which the government review the salary and wages of the civil servants in Nigeria. It combines the old and new wages and salaries from which we can draw the base periods for data analysis.

#### Source of Data

This research relies on data from the secondary sources. Data are gathered from the national bureau of statistics, the central bank, journals and articles federal office of statistics (FOS) etc.

### 5. DATA ANALYSIS

#### Distribution of Income in Nigeria

The table below shows the distribution of income groups from 1990 to 2000. The table reveals the pattern of income distribution that allows the concentration of national income in

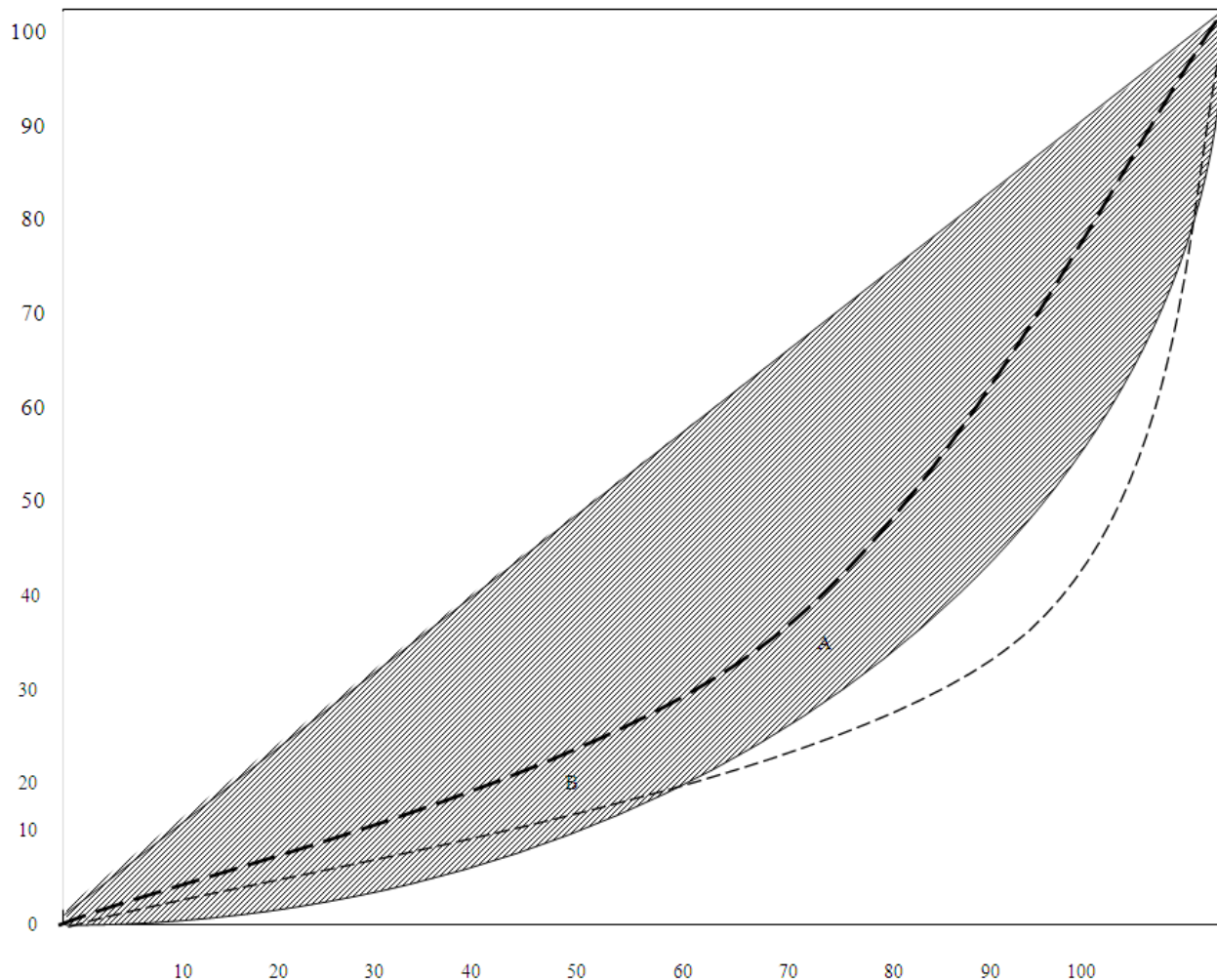
the hands of the few. It also reveals that every day, the rich are getting richer while the poor are getting poorer in Nigeria. This is shown on the table below:

**Note:** Lowest 20%: street hawkers, traders, farmers, junior administrative workers Next 20%: Civil servants from G.L 10 to 15, small scale business owners Middle 20%: Civil servants from G.L 15, lecturers, military officers Next 20%: Contractors, Law makers, foreign diplomats, oil company workers Highest 20%: Foreign investors, top political office holders, past political holders. As shown on the table, within the period of 1990 to 2000, the share of the lowest group from the GDP never exceeds 5%. (Bakare, 2012).

Income Recipients Quartiles (%)	% share in 1990	% share in 1991	% share in 1992	% share in 1993	% share in 1994	% share in 1995	% share in 1996	% share in 1997	% share in 1998	% share in 1999	% share in 2000
Lowest 20% Next 20%	4.5	3.5	2.5	2.6	3.5	2.5	3.5	2.1	1.8	2.0	1.57
Middle 20% Next 20%	11.1	10.0	10.3	9.0	0.8	10.1	8.1	7.1	8.0	8.0	7.5
Highest 20%	14.1	12.0	16.5	15.1	16.1	14.5	15.2	14.1	15.7	12.5	14.1
	20.5	25.0	22.1	23.5	22.5	23.0	22.5	22.3	22.5	22.0	20.1
	49.8	50.0	48.6	49.8	49.9	49.9	50.7	54.4	52.0	54.2	56.8
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Federal Office of Statistics, Lagos

The largest share of the GDP always goes to the (highest 20%) which received 56.8% of the GDP in 2000. The pattern of income distribution is such that allows the lowest 20% and the next 20% groups to be worse off. The Lorenz Curve of the above data is shown below:



**Gini -Coefficient**

Drawing inspiration from Bakare’s attempt to calculate the Gini- coefficient for the Lorenz curves obtained in the preceding section. The results are shown below: Each big square on the graph has an area of 25cm<sup>2</sup> while the small square has an area of 1cm<sup>2</sup>.

Where A = shaded portion on the graph, i.e. between line of equality and Lorenz curve B is area below the curve; A + B = 1250. The estimate for each year is shown on the table below:

YEAR	WORKINGS	GINI COEFFICIENT
1991	600/1250	0.48
1992	625/1250	0.50
1993	632/1250	0.51
1994	640/1250	0.51
1995	641/1250	0.51
1996	650/1250	0.52
1997	673/1250	0.53



1998	672/1250	0.53
1999	683/1250	0.55
2010	699/1250	0.60

Source: Bakare A. S., Measuring the Income Inequality in Nigeria: the Lorenz Curve and Gini Co-efficient Approach, *American Journal of Economics*, Vol. 2 No. 1, 2012.

## 6. Summary and conclusions

The intention of the study was focused on the measurement of the existence and magnitude of income inequality in Nigeria and add more information on the body of work concerning income inequality.

Some of the findings made in the study are as follows:

1. There is indeed income inequality in Nigeria which allows the rich to be getting richer and the poor getting poorer on daily basis.
2. The Lorenz curve and the values of the Gini-coefficient reveal the compositional peculiarities of income distribution in Nigeria. They classified Nigeria as a country with highly unequal income distribution that has a Gini coefficient that lies between 0.46 and 0.60.
3. The illiteracy rate in Nigeria shows high disparity in the income level of Nigeria. A few rich could afford good education, while the majority could not afford quality education because of low income. Therefore, illiteracy rate becomes both causative and resultant effect of income inequality in Nigeria.
4. The redistribution of income might be a source of poverty since income in the hands of the minority will lead to increase in illiteracy.

It can be deduced from the above that income inequality is not a desirable component in developing countries. More income in the hands of few shows that is the country is still crapplying with issues of sustainable development.

## Recommendation.

There is a lot the government has to do in order to reduce the level of income inequality in Nigeria. Below are highlighted a few:

- a. Efforts of the government should be mobilized towards the formulation and implementation of more pragmatic employment policies in Nigeria. A more effective employment policy would enable workers to create wealth from their income (and not just for sustenance) which enhances a more evenly distribution of income.
- b. Government should also ensure proper monitoring of its spending on education and health, through appropriate policy measures. Awe and Olawumi (2012) say that this will checkmate the diversion of funds meant to boost educational growth and health care delivery in Nigeria efforts in ensuring proper monitoring of funds allocated to the health sector, so as to boost health care delivery in the country.
- c. Finally, a set of policies designed to bring about a more equitable distribution of income, equal access to education and associated income earning opportunities should be given priority in Nigeria. Such policies should be targeted towards ensuring that



the income gap between the rich individuals and the poor individual in Nigeria is further closed.

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## THE IMPACT OF TAX REFORMS AND ECONOMIC GROWTH OF NIGERIA

Samira Abdulrahman

### **Abstract:**

*The study examines the impact of tax reforms on the economic growth of Nigeria from 1986 to 2012. To achieve the objective of the study, relevant secondary data were collected from Central Bank of Nigeria publications, Federal Inland Revenue Service publications and the publications of Federal office of statistics, text book, published and unpublished thesis. Using the E-VIEWS Windows, the OLS regression results shows that tax reforms is positively and significantly related to economic growth and that tax reforms indeed causes economic growth. On the basis of the findings, the study concluded that favourable tax reforms improves the revenue generating capacity of government to undertake socially desirable activities that will translate to economic growth in real output and per capita basis. However, it was recommended that sustainable economic growth can be heightened through taxes in line with macro-economic objectives, corrupt-free and efficiency in tax policies of the government, alongside, accountability and transparency of government officials.*

**Keywords:** tax reforms, economic growth, government, Nigeria

### **1.0. INTRODUCTION**

In general concept, tax is a compulsory levy imposed on the citizens (including their property) by the government for the main purpose of providing infrastructures for economic growth and development.

The political, economic and social development of any country depends on the amount of revenue that is generated for the provision of infrastructure in that given country. One means of generating the amount of revenue for providing the needed infrastructure is through a well-structured tax system. Tax is a major player in every society of the world. The tax system is an avenue for government to collect additional revenue that is needed in discharging its immediate obligations. A tax system serves as one of the most effective means of mobilizing a nation's internal resources and it lends itself to creating an environment conducive to the promotion of economic growth. (AZUIBIKE, 2009). Taxes constitute important sources of revenue to the federation account jointly shared by the federal, state and local governments. (NZOTTA, 2007).

Similarly, in Nigeria, the government's fiscal power is divided into three-tiered tax structure between the federal, state and local governments, each of which has different tax jurisdictions. The system is however dominated by oil revenue. (ODUSOLA, 2006). He further argues that over the past 20 years oil revenue has accounted for at least 70% of the revenue, thus indicating that traditional tax revenue has never assumed a strong role in the country's management of fiscal policy. Instead of transforming the existing revenue base, fiscal management has only transited from one primary product-based revenue to another, making the economy vulnerable to fluctuations in the international market. It is on the

account of this lopsided revenue structure that tax experts and scholars stated that the Nigerian tax system needs to be reformed and revamped in order as to achieve long term economic growth and development.

## 2.0 THEORETICAL AND LITERATURE UNDERPINNINGS

Theories of taxation theory may be derived on the inclination that there may be no relationship between tax paid and benefits received from state activities (BHARTIA, 2009). There are two theories to these effect: Socio-political theory and the Expediency theory

**Socio political theory:** This theory of taxation is of the view that social and political objectives should be the major factors in selecting taxes. The theory advocates that a tax system should not be designed to serve individuals alone, but should rather be used to cure the problems of society at large.

**Expediency theory:** This theory states that every tax proposal must pass the test of practicality. It must be the only consideration weighing with the authorities in choosing a tax proposal. Economic and social objectives of the state as also the effects of a tax system should be treated as irrelevant (BHARTIA, 2009)

Also, a taxation theory may be based on a link between tax liability and state activities. This reasoning justifies the imposition of taxes for financing state activities and also providing a basis for apportioning the tax burden between members of the society. This reasoning gives birth to the benefit received theory and cost of service theory, and also the faculty theory of taxation.

**Benefit received theory:** This theory is based on the assumption that there is basically an exchange relationship between tax-payers and the state. The state provides certain goods and services to the members of the society and they in turn contribute to the cost of these supplies in proportion to the benefits they receive (BHARTIA, 2009). Taxes should be allocated on the basis of benefits received from government expenditure (ANYANFO, 1996)

**Cost of service theory:** This theory is similar to the benefits received theory. However, it lays emphasis on the semi commercial relationship between the state and its citizens to a greater extent. In this theory, the state is being asked to give up its basic protective and welfare functions. It is to carefully recover the cost of the services and as such this theory assumes a balanced budget policy.

**Faculty theory:** This theory states that taxes should be levied on individuals according to their ability to pay (ANYANFO, 1996). Similarly it is argued that a citizen is to pay tax just because he can, and his relative share in the total tax burden is to be determined by his relative paying ability (BHARTIA, 2009).

**Purpose of Taxes:** The main purpose of tax is to raise revenue to meet government expenditure and to redistribute wealth and management of the economy (JHINGAN, 2004)). Four key issues must be understood for taxation to play its functions in the society. First, a

tax is a compulsory contribution made by the citizens to the government and this contribution is for general common use. Secondly, a tax imposes a general obligation on the tax payer. Thirdly, there is a presumption that the contribution to the public revenue made by the tax payer may not be equivalent to the benefits received. Finally, a tax is not imposed on a citizen by the government because it has rendered specific services to him or his family (NZOTTA 2007). With this, it is then clear that any good tax structure must play multiple roles in the process of economic development of any nation which Nigeria is not an exception to (APPAH, 2010) These roles include: the level of taxation affects the level of public savings and thus the volume of resources available for capital formation; both the level and the structure of taxation affect the level private saving. A system of tax incentives and penalties may be designed to influence the efficiency of resource utilization; the distribution of the tax burdens plays a large part in promoting an equitable distribution of the fruit of economic development; the tax treatment of investment from abroad may affect the volume of capital inflow and rate of reinvestment of earnings there from; and the pattern of taxation on imports relative to that of domestic producers affect the foreign trade balance (MUSGRAVE & MUSGRAVE, 2004)

Nonetheless, there are three basic objectives of taxation. The first is to raise revenue for the government, to also regulate economic activities and to control income and employment.

In addition taxes generally have allocation, distributional and stabilization functions. The allocation function of taxes involves the determination of the pattern of production, the goods that should be produced, who produces them, the relationship between the private and public sectors and the point of social balance between these two sectors.

The principles of taxation mean the appropriate criteria to be applied in the development and evaluation of the tax structure. Such principles are essentially an application of some concepts derived from welfare economists. In order to achieve the wider objectives of social justice, the tax system of a country should be based on sound principles according to (ANYANFO, 1996). The various principles of taxation include equality, certainty, convenience, economy, simplicity, productivity, flexibility and diversity (JHINGAN 2004), (BHARTIA 2009) and (OSIEGBU, ONUORA, & NNAMDI, 2010).

**Equity principle:** states that every taxpayer should pay the tax in proportion to his income. The rich should pay more and at a higher rate than the other person whose income is less (JHINGAN, 2004).

**Certainty principle:** states that a tax which each individual is bound to pay ought to be certain, and not arbitrary. The time of payment, the mode of payment, the amount to be paid need to all be clear and plain to the contributor and every other person (BHARTIA, 2009).

**Convenience principle:** opines that the time and manner should be convenient to the taxpayer. This principle of taxation provides the rationale for Pay - As - You - Earn (PAYE) system of tax collection. (ANYANFO, 1996).

**Economy principle:** states that every tax should be economical for the state to collect and the taxpayer to also pay. This principle implies that taxes should not be imposed if their collection supersedes the benefits. (APPAH, 2004; JHINGAN 2004; BHARTIA, 2009; ANYANFO, 1996).

**Productivity principle:** states that a tax should be productive in the sense that it should bring large revenue which should be adequate for the government. This is the major reason why governments in all parts of the globe continuously employ tax reforms.

**Simplicity principle:** states that the tax should be plain, simple and intelligible to common taxpayer. (ANYANFO, 1996) argue that there should be no hidden agenda in the tax law.

**Flexibility principle:** opines that there should be no rigidity in taxation. Diversity Principle of taxation states that there should be different variety of taxes.) It is risky for state to depend upon few sources of public revenue (BHARTIA, 2009).

## 2.1 NIGERIA AND ITS TAX REFORM POLICIES

Nigeria's over dependence on oil revenue has made the federal government to reform the existing tax laws. The objectives of tax reforms in Nigeria are: to bridge the gap between the National and the funding of the needs; to ensure taxation, as a fiscal policy instrument, to achieve improved service delivery to all; to improve on the level of tax derivable from non-oil activities, vis-à-vis revenue from oil activities; efforts at constantly reviewing the tax laws to reduce/manage tax evasion and avoidance; and to improve the tax administration to make it more responsive, reliable, skillful and taxpayer friendly and to achieve other fiscal objectives (ALLI, 2009).

The Nigerian tax system has experienced series of reforms since 1904 to date. The effects of the various reforms in the country are: introduction of income tax in Nigeria between 1904 and 1926; grant of autonomy to the Nigerian Inland Revenue in 1945; the Raisman Fiscal Commission of 1957; formation of the Inland Revenue Board in 1958; the promulgation of the Petroleum Profit Tax Ordinance No. 15 of 1959; the promulgation of Income Tax Management Act 1961; establishment of the Lagos State Inland Revenue Department; the promulgation of the Companies Income Tax Act (CITA) 1979; establishment of the Federal Board of Inland Revenue under CITA 1979; establishment of the Federal Inland Revenue Service between 1991 and 1992; and tax policy and administration reforms amendment 2001 and 2004.

A more recent reform embarked upon by the Nigerian government was instituting the Study Group on the Nigerian Tax System. This group which was launched on the 6th of August, 2002, was in a bid to examine the tax system and make appropriate recommendations towards achieving a better tax policy and overall improvement in the tax administration within the country. This group consists of individuals from business, academia, intellectuals and the government. The result of the reform was the approval of nine (9) new bills on tax reforms by the Federal Executive Council for the consideration of the National Assembly and was subsequently passed as Acts. The Acts, include : Federal Inland Revenue Service Act 2004; Companies Income Tax Act 2004; Petroleum Profit Tax Act 2004; Personal Income

Tax Act 2004; Value Added Tax Act 2004; Education Tax Act 2004; Customs, Excise Tariffs, etc. (Consolidation) Act 2004; National Sugar Development Act 2004; and National Automotive Council Act 2004.

To understand the importance of tax policy reforms, one needs to come to terms with the urgency for such reforms. Firstly, there is an urgent need to diversify the revenue portfolio of the country in order to safeguard against the volatility of crude oil prices and to promote fiscal sustainability and economic viability at lower tiers of government. Second, Nigeria operates on a cash budget system, where proposals for expenditure are always channeled towards revenue projections. This enables the ability to determine the optimal tax rate for a given level of expenditure. Therefore, accuracy in revenue projection is of utmost importance for implementing an appropriate framework for sustainable fiscal policy management. This can however be achieved when reforms are undertaken on existing tax policies in order to achieve some improvement. Thirdly, Nigerian tax system is concentrated on petroleum and trade taxes while direct and indirect taxes like the value-added (VAT) are ignored. This is a structural problem for the country's tax system. Although direct taxes and VAT possess the ability for expansion, their impact is limited because of the domineering informal sector in the country. Finally, the widening fiscal deficit over the years has threatened macroeconomic stability and prospects for economic growth makes the idea of a tax reform very appealing.

Nigeria's fiscal policy measures have been mainly driven by the need to promote some macroeconomic objectives in promoting rapid growth of the economy, generating employment, maintaining price levels and improving the balance-of payment conditions of the country. Although policy measures change from time to time, the following objectives have however remained somewhat constant. Before mid-1980s, tax policies, for instance, were geared to achieving objectives such as:

- i) Ensuring effective protection for local industries;
- ii) Promoting greater use of local raw materials;
- iii) Improving on the value added of locally manufactured and primary products;
- iv) Promoting greater geographical dispersion of domestic manufacturing activities and;
- v) Heightening government revenue.

## 2.2 EMPIRICAL STUDIES

A lot of empirical studies have been conducted on the effects of taxes on economic growth and development of a nation Among them are the studies of (TOSUN & ABIZADEH, 2005) in their study of economic growth of tax changes in OECD countries from 1980 to 1999 which revealed that economic growth measured by GDP per capita has a significant effect on the tax mix of GDP per capita. It is shown that while the shares of personal and property taxes have responded positively on economic growth, shares of the payroll and goods and services taxes have shown a relative decline.

Also (ENGEN & SKINNER, 1996) in their study of taxation and economic growth of U.S. economy, large sample of countries and use of evidence from micro level studies of labour supply, investment demand, and productivity growth. Their result suggests modest effects on



the order of 0.2 to 0.3 percentage points' differences in growth rates in response to a major reform. They stated that such small effects can have a large cumulative impact on living standards of people.

(EASTERLY & REBELO, 1993) test the tax rate by their own method of constructing marginal tax rate plus several other methods of defining the marginal tax rate, in tax regressions, in total 13 different measures tax rate are employed. The methodology adopted is to include these measures of the marginal tax rate one at a time within a basic regression equation. The basic equation contained the standard determinants of growth notably initial income, school enrolments, assassination, revolutions and war casualties. Estimation of this equation without the inclusion of rates generated the result with an R of 0.29. They concluded that "the evidence that tax rates matter for economic growth is disturbingly fragile".

In their study, (ARNOLD, 2011) found that short term recovery requires increase in demand while long run growth requires increase in supply. As short term concessions can be hard to reverse, this implies that policies to alleviate this crisis could compromise long run growth. (WIDMALM, 2001) studied the effect of the tax structure on growth using cross-section data on 3 OECD countries from 1965-1990. However the use of only three OECD countries limits the viability of this study, as more OECD countries could be used for a more efficient result. The methodology follows that of (LEVINE & RENELT, 1992) but used four basic variables (initial income, investment to GDP ratio, population growth, and average tax rate). The share of different tax instruments in revenue is considered first (corporate income tax, personal income tax, property tax, taxes on goods and services, and taxes on wages). The proportion of tax revenue from taxing personal income has a negative and robust correlation with growth. There is also some evidence that progressivity affects growth.

This hypothesis is addressed in (LEE & GORDON, 2005) by conducting a tax regression using the top corporate marginal tax rate and top personal marginal tax rate to capture the effect of taxation. They justify this choice by an appeal to entrepreneurial activity being the driver of growth, and the top marginal rate being the one that is likely to be applicable to successful entrepreneurs, they concluded that it is corporate taxes that are most damaging for growth since they reduce entrepreneurial activities and lessen the incentive for innovation cutting corporate tax by 10 percent points and can increase annual growth rate by 1.1 percentage point.

### **3.0 DATA AND ESTIMATION PROCEDURE**

The source of data for this research work is purely a secondary source. For the purpose of this research work time series variables obtained from Federal Inland Revenue Services, Central Bank of Nigeria publications, Office of the accountant general of the Federation and the publications of Federal office of statistics, text books, published and unpublished thesis. The Scope of the work will be from 1986-2012. The choice of 1986 is because the researcher wants to study taxation from the period of post-structural adjustment in Nigeria. Hence, our total sample is 26.



Our study will employ the use the analytical tools of analysis which consists of the use of ordinary least square (OLS) Regression Technique. The ordinary least square method of multiple regression analysis is adopted to determine the effect of tax reform on economic growth of Nigeria.

### 3.1 SPECIFICATION OF THE MODEL

This involves the expression of the theoretical relationship in mathematical form with which the economic phenomenon will be explored empirically.

$$\text{GDP} = f(\text{PPT}, \text{CIT}, \text{VAT})$$

$$\text{GDP} = \beta_0 + \beta_1\text{PPT} + \beta_2\text{CIT} + \beta_3\text{VAT} + \mu$$

Where;

GDP = Gross domestic product as a proxy for economic growth

PPT= PETROLEUM PROFIT TAX

CIT= COMPANIES INCOME TAX

VAT= VALUE ADDED TAX

$\beta_0, \beta_1, \beta_2, \beta_3$  are the parameters to be estimated

$\mu$ = Stochastic term or error term.

The model specified above will undergo three major evaluation criteria

### ECONOMIC APRIORI CRITERIA

The parameter  $\beta_0$  is expected to be positive (+) which means that even if when fdi, exchange rate and exports are zero, gross domestic product (GDP) will assume a positive value.

### 3.1 STATISTICAL CRITERIA

The statistical criteria (first order test); aimed at the evaluation of statistical reliability of the estimates in the parameter of the model. They are as follows:

THE STANDARD ERROR OF THE ESTIMATES: If the standard error ( $\beta_1$ )  $< \beta_1/2$ , we conclude that  $\beta_1$  is statistically significant. But if S.E ( $\beta_1$ )  $> \beta_1$ , we conclude that  $\beta_1$  is statistically insignificant.

THE STUDENT T-TEST: This will be used in testing the statistical significance of each regression coefficient at a given level of significance with N-K degree of freedom and in this case, we will use 5% level of significance and it is given as;  $\pm t_{\alpha/2}(N-K)$  where; If  $t^c < \pm t_{\alpha/2}(N-K)$  we reject  $H_0$  and accept  $H_1$ . But if  $t^c > \pm t_{\alpha/2}(N-K)$  we accept  $H_0$  and reject  $H_1$ , and take a decision based on the findings.

### 3.2 ECONOMIC CRITERIA

The economic criteria (second order tests) are used to test the presence of autocorrelation between independent variable and error term. The test compares the empirical ( $d^*$ ) value calculated from the regression residuals with the upper ( $d_U$ ) and lower ( $d_L$ ) limits for the significance levels of  $d$  in the DW tables and with their transforms ( $4-d_U$ ) and ( $4-d_L$ ). The comparison using  $d_L$  and  $d_U$  investigates the possibility of positive auto correlation. While the comparison with ( $4-d_L$ ) and ( $4-d_U$ ) investigates the possibility of negative autocorrelation. The decision rules are as follows

If  $d^* < d_U$ , or  $d^* > (4-d_U)$  we reject  $H_0$  and conclude that there is autocorrelation.

But if  $d_U < d^* < (4-d_U)$  we reject  $H_0$  and conclude that there is no autocorrelation in the model.

### 3.0 ANALYSIS OF DATA

#### 4.0

**Table 4.1**

Variables	Coefficients	Standard Error	T-Statistic
(Constant)	284517.3	17664.17	16.10703
VAT	-0.00059	0.000163	-3.592531
PPT	0.03335	0.01916	1.740190
CIT	1.15931	0.1887	6.141745

**STANDARD ERROR:** From the result presented above in section 4:1 Since Standard Error ( $b_i$ )  $> b_i/2$  that is  $0.00016 > -0.00059/2$  we conclude that the coefficient Value Added Tax is statistically insignificant; also since  $S.E (b_2) < b_2/2$  i.e.  $0.01916 > 0.03335/2$  we conclude that the coefficient estimate of Petroleum Profit Tax is statistically insignificant, and for  $b_3$ ,  $0.1887 < 1.15931/2$ , we conclude that the coefficient estimate of Company Income Tax is statistically significant.

**T- TEST:** This hypothesis IS tested at 5% level of significance with  $N - K$  degree of freedom which means 95% level of confidence. Therefore, the critical value of  $t$  is;  $\pm t_{\alpha/2} (n - k) = \pm t_{0.05/2} (22 - 4) = \pm t_{0.025} (18) = t^t = \pm 2.074$

Since  $t^c (\beta_i) < \pm t^t$  i.e.  $-3.392531 < \pm 2.074$ . It is concluded that the coefficient estimate of Value Added Tax is statistically significant at 5% level. Since  $1.74091 < 2.074$  it is concluded that the coefficient of Petroleum Profit Tax is statistically significant, and given  $\pm t^t < t^c (\beta_3)$  i.e.  $\pm 2.074 < 6.141745$  then the coefficient of Company Income Tax is statistically insignificant at 5% level of significant which means 95% level of confidence we can attribute the effect of the explanatory variables on the dependent variable in our model.

**Table 4.2: MODEL SUMMARY**

MODE L	R-SQUAR E	ADJUSTE D R-SQUARE	STD.ERRO R OF ESTIMATE	Durbin Watson	F STATISTIC S	Prob. F-Statistic s
1	0.960	0.950	45176.25	1.23744 4	118.0579	0.000000

- Predictors: Constant, PPT, CIT, VAT
- Dependent Variable: GDP

**F – TEST:** At  $\alpha = 5\%$ , with  $K - 1$  ( $v_1$ ) and  $N - K$  ( $v_2$ ), i.e. ( $V_1 = 3$ ) & ( $V_2 = 22$ ) degree freedom. From the F – distribution table we have F – critical,  $F^{0.05}_{v_1, v_2} = 3.05$  and F – calculated,  $F \text{ Stat} = 118.06$ . Since  $F \text{ stat} > F^{0.05}_{v_1, v_2}$ , i.e.  $118.06 > 3.10$  at 5% level of significance, we reject  $H_0$  and conclude that the variables in the model are statistically and jointly significant.

**TEST FOR AUTOCORRELATION** Auto correlation of the estimated model with  $\alpha = 5\%$ : From the Durbin – Watson table when  $N = 26$  and  $K = 3$ , then  $dL = 1.14$  while  $du = 1.65$ . However, the computed Durbin – Watson result presented in the table is 1.24 i.e. since  $d^* < du$  i.e.  $1.24 < 1.65$ , we conclude that there is an evidence of positive Autocorrelation or positive first – order serial correlation as the case may be.

Finally, the model R – square ( $R^2$ ) is 0.960. The implication of this is that the explanatory variables in the model (Government expenditure, interest rate and money supply) explained about 96% of the total variations in the Gross domestic product (GDP) in the Nigeria economy. Likewise, the Adjusted  $R^2$  is 0.950, i.e. 95% which shows that there is a very strong positive correlation between the selected variables and the economic growth in Nigeria during the period of study. With these we conclude that the variables are well selected.

## 5.0 CONCLUSION AND RECOMMENDATION

This research work focused on the Impact of Tax Reforms on Economic Growth in Nigeria. Modeling Gross Domestic Product (GDP) against PPT, CIT and VAT. Generally, the models performance is good since its significance was show by F – statistic, R – square (coefficient of determination) and coefficient of correlation (R) during the period of study. Therefore the research work has succeeded in showing that Tax Reforms has a significance impact on the economic growth in Nigeria.

Based on the findings, the recommendations from the research are as follows:

1. The efficiency of the Nigeria tax must be improved and upgraded to suit both government and citizens.
2. Simple and transparent tax laws should be put in place to regulate the tax regimes in Nigeria
3. The assumed relationship between paying tax and enjoying the benefits of government expenditure should be strengthened by increasing awareness of this relationship which can be clearly beneficial and constructive for not just the populace but also the economy as a whole.
4. Finally, further studies should be conducted to investigate other influence on the economic growth in Nigeria, which would tax reform and implementation.