EDUCATION AND ECONOMIC DIVERSIFICATION FOR SELF-RELIANCE IN NIGERIA

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Abstract

The paper examines the nexus between education and economic diversification for self-reliance. It argues that since Nigeria is still at the primary stage of development depending heavily on the export of crude petroleum it is imperative for the economy to diversify away from oil into various areas of investment so as to provide and ensure other sources of revenue for government. For economic diversification to succeed both government and the private sector have important roles to play. Government must develop hard and soft infrastructure, among others to attract both potential and foreign investors. The paper cautions against the export of natural resources including agricultural products without adding value.

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I. INTRODUCTION

In any country's development matrix, education, economic diversification and self-reliance are significant variables. How the leadership, policy-makers and technocrats maximize these crucial variables would determine the country's speed towards not just economic development but also the commitment to poverty reduction. Developed economies of Europe, North America as well as the Newly Industrialized Countries (NICS) of Asia leap-frogged into modern knowledge-base economies by ensuring the optimum use of education for self-reliance and economic emancipation. This scenario results in economic diversification.

Consequently, any serious government and/state must perceive education, self-reliance and economic diversification as strategic inputs in her economic development plans. Education refers to knowledge at all levels (primary, secondary and tertiary) whether formal or informal. It must be stated that in their struggle for political independence, the founding fathers of Nigeria advocated for quality education for self-reliance while stressing the need for a strong economy. Even colonial Britain had to educate the indigenes in order to utilize them to govern the colony. However, while some of the founding fathers differed on the mode of implementation, they all agreed that education was

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crucial for national development. In recent times, some pundits in Nigeria have argued that the quality of education has fallen, that is, the present quality and quantity of education at all levels cannot guarantee self-reliance not to mention economic diversification. It is important to state that self-reliance must include economic diversification and vice versa.

While this keynote address would not settle the debate on quality assurance, it would rather examine the nexus between education, economic diversification and self-reliance. The current economic recession in Nigeria cements the desire to re-examine the subject matter in line with domestic and global realities. This address would follow this format. Section 2 will briefly examine some conceptual issues while section 3 highlights the present state of the Nigerian economy in order to stress the importance of the subject matter. Section 4 addresses the scenario of Nigeria without oil, including suggested strategies for diversifying the economy while section 5 concludes the address as well as offers some policy recommendations.

2.   CONCEPTUAL CONSIDERATIONS

Education implies training the human being to become beneficial to the society at large and not necessarily for selfish reasons. Human beings may be trained to acquire skills of different types; even those who are often labeled as unskilled are skilled based on what they can offer society. Is it wrong to assert that a person who performs manual labour is unskilled? He/she could be trained to acquire special skills. The point being made is that every human being is a resource for society. Education only up-scales hidden abilities which if properly harnessed would enable him/her to contribute more to humanity. According to (Harbison, 1973, p.3):

> "Human resources….constitute the ultimate basis for the wealth of nations. Capital and natural resources are passive factors of production, human beings are the active agents who accumulate capital, exploit natural resources, build social, economic and political organizations, and carry forward national development. **Clearly, a country which is unable to develop the skills and knowledge of its people and to utilize them effectively in the national economy will be unable to develop anything else."** This assertion and emphasis fully explains the Nigerian situation.

When these persons are fully developed and utilized effectively, they would then proffer ideas and strategies that would diversify the economy and ensure self-reliance. Therefore, economic diversification may be defined as a situation in which an economy has diverse sources of earning revenue and not heavily dependent on one source. For example, the heavy dependence of Nigeria on

the export of crude petroleum is not diversification. To be diversified, an economy should have a strong manufacturing base, a dynamic and vibrant services sector, a modern agricultural sector as well as a natural resource sector. In other words, economic diversification implies economic complexity. A negative shock in the price(s) of commodities would not adversely affect an economy that is diversified. Self-reliance connotes depending less on other economies for sustainable economic growth and development.

However, to drive the process of education and economic diversification, government has a critical role to play. It may be argued that while diversification is crucial for sustained growth and inclusive development, the process must be driven by government. In other words, government as an economic agent has a crucial role in the diversification process. Diversification of an economy implies transforming it to become complex and diverse, relying on investments with the associated benefits (revenue) and risks, not simply from one sector such as a bourgeoning natural resource sector (such as oil) but also from other sectors of the economy including a strong manufacturing base, a vibrant services sector and a booming agricultural sector in the lead up to sustainable economic growth and development. (Madjd – Sad; adi, 2016)

It is, thus, possible to state an aggregate production function that captures the crucial role of the state/government:

$$Y = f(K, L; G) \qquad (1)$$

$$f' > 0$$

Where

Y = aggregate production function in a general form

K = capital

L = labour

G = government investment

In equation (1) the paper endogenizes government expenditures. However, it decomposes government expenditures into:

$$G = h(g_{ca}, g_{cur}) \qquad (2)$$

$$h' > 0; h'(gca) > 0; h'(gcur) > or < 0$$

Where:

g_{ca} = government capital expenditures

g_{cur} = government current expenditures

The assumption is that increased government expenditure would enhance aggregate output while equation (2) states that government expenditure could be segmented into capital and recurrent. Theoretically, government capital expenditure is essential for growth and this could be likened to public investment in hard infrastructure such as power, roads, rails, building of training institutions (primary, secondary and tertiary and soft infrastructure like funding research etc – important in enabling the diversification process. The relationship between government current expenditure and growth is empirical due to the fact that in a period of inadequate aggregate demand, putting money in the hands of households and their families would increase consumption thus enhancing output, all things being equal. As the Nigerian economy is in a recession, both capital and recurrent expenditures by government are necessary to fast-track recovery. In this context salaries of staff/personnel in training institutions as part of the recurrent expenditures lubricate the economic diversification process.

If it is assumed that the private sector is an engine of growth then equation (1) can be re-written as:

$$\Delta y = g\left(I_{p,}G, X_i\right) \qquad (3)$$

Where:

$\Delta y \quad = \quad growth\ or\ changes\ in\ Gross\ domestic\ product$

$Ip = investment\ by\ the\ private\ sector,$

$X_i =$ control variables such as openness, inflation, debt and violence.

$$Dv = V\left(I_p, g_{ca}, g_{cur}, x_i\right) \qquad (4)$$

Where:
Dv = Diversification

Equation (4) states that for diversification of the economy to take place, how the private sector (Ip) and government combine the types of investment to drive the process is crucial. Consequently, the strategies of government particularly as regards capital expenditure would affect the decision of private investors and the diversification process. If, for example, an investor is interested in ship building and government provides good road network, railways and power to the seaport, the potential investor would avail itself of the opportunity. Hence, ship building would become an economic activity generating employment and other activities may grow out of it (Ekpo, 2016g). The paper next examines the structure and state of the Nigerian economy to better locate the need for education and diversification for self-reliance.

The point being stressed is that in formulating and implementing strategies for diversifying the nation's economy, government must play an active role. In fact, government must drive the process. It is the government's economic strategy that would ginger the private sector to want to invest in various areas of the economy, make profit and contribute to economic complexity (diversification) and growth. The private sector is an engine of diversification and growth and not development - the latter is second best. The private sector exists in an economy managed by government. It is government that is an engine of development utilizing the benefits of growth to promote economic diversity, equity and fairness. The economy can be private sector driven but it must be led by the public sector. It is government that is concerned about education, health, employment, poverty, inequality and security (Ekpo, 2016b).

3. STATE OF THE NIGERIAN ECONOMY: STYLIZED FACTS

At present, the Nigerian economy is in a recession with rising unemployment, rising inflation, negative growth and a depreciated domestic currency. This situation is not surprising when a revisit is made to how the economy has been battered hitherto. There was the removal of oil subsidy, non-payment of salaries and allowances to workers in about 24 states, sharp decline in global oil prices thus reducing the foreign exchange reserve, irregular power supply as well as unprecedented looting of the treasury and sluggish global economic recovery, among others.

Before the recession, despite positive growth trajectories for almost 15 years, there was little economic development. The economy was still at the primary stage of development given the dominance of peasant agriculture and mining. The manufacturing sector contributes only 5 per cent to GDP in the period 2004-2015. In the first two quarters of 2016, the contribution of manufacturing to GDP was negative (-7 and -3 percent).

Before and after the rebasing of the GDP, the structure of the economy was not transformed. The economy still remains at the primary stage of production. A movement towards the secondary stage where manufacturing dominates would have reflected some degree of diversification (see Table 1 below).

Table 1: Nigeria: Real Sectoral GDP Growth after Rebasing, 2010 – 2015 (%)

Item	2010	2011	2012	2013	2015	2016	
						Q1	Q2
Agriculture	2.92	6.70	2.94	2.9	3.72	3.09	4.53
Mining & Quarrying	2.41	-4.78	-12.81	-12.8	-5.27	-2.96	-17.2
Manufacturing	17.82	13.46	21.80	21.7	-1.46	-7.00	-3.36
Construction	15.71	9.44	14.22	14.2	4.35	-5.37	-6.28
Trade	7.21	2.21	6.64	6.6	5.14	2.02	-0.03
Arts, Entertainment & Recreation	48.3	27.36	14.93	14.9	9.40	8.91	-1.80
Finance & Insurance	-26.9	21.02	8.63	8.6	7.12	-11.3	-10.8
Real Estate	0.43	5.65	11.98	11.9	2.11	-4.68	-5.27
GDP Growth	5.31	4.21	5.49	5.5	2.29	-0.36	-2.06

Source: National Bureau of Statistics, Abuja.

A close look at the data (see Tables in the appendix) show that the services sector dominates in terms of its contribution to GDP. At almost 53 per cent in the 1st quarter of 2014, it increased to almost 55 per cent in the same quarter of 2015. It declined to almost 50 per cent in the 3rd quarter of 2015. The growth of industries from 2014 – 2015 stood at an average of 6 per cent. Interestingly, services now contribute more to GDP than any other sector of the economy. Does this imply structural transformation? The answer is No. This phenomenon in an economy such as that of Nigeria is known as tertiarization. The new 2008 Social National Accounts is complicated and complex. In almost every sector, there is a service component; hence textile, education, real estate etc. have services coupled with banking, insurance and other financial services. The quality of services is not only poor but also rudimentary.

According to the NBS, growth in the oil sector declined by 6.7 per cent in the 2nd quarter of 2015 (year-to-year). The oil sector contributed 4.8 per cent to GDP in the 2nd quarter of 2015 while the oil sector represented 10.27 per cent of total real GDP. In fact during the 2010 – 2013, the mining and quarrying sub-sector driven by oil and gas contracted by 4.78 per cent in 2011, - 12.81 in 2012 and - 12.8 per cent in 2013, respectively.

On the other hand, the non –oil sector contributed 90.2 per cent to GDP in the 2nd quarter of 2015 which at 89.73 percent is slightly lower than that of the 3rd quarter of 2015. Growth in the non-oil sector is driven by activities of crop production, financial services, telecommunication and trade sub-sectors, among others. The contribution of the non-oil sector shows some evidence of diversification of the economy away from oil. The arts, entertainment and recreation sub-sector grew sharply during the period 2010 – 2015. This is an important outcome of the rebasing exercise.

It should be noted that after rebasing GDP at 2010 constant prices, the structure of the economy remained undiversified; data show that agriculture (peasant) dominates; manufacturing contributes less than 10 per cent to GDP while the contribution of services at 50.0 percent in 3rd quarter of 2015 has to be interpreted with caution. The rebasing indicates to government which sector of the economy to direct policy. In this case, the housing and real estate sub-sectors are good candidates. Furthermore, the rebasing makes Nigeria a middle-income economy with implications. For example, she is no longer entitled to International Development Association (IDA) 2011 loans which attract concessionary rates and longer period of re-payments. However, the best practice is to rebase every 4 to 5 years and not after 24 years (NBS,2016).

Despite the growth trajectories, how has the Nigerian economy performed? Table 2 below shows that the Nigerian economy has not been performing satisfactorily even before the recession. Table 2 below indicates the poor economic performance. The EPI is less that 80 per cent while both discomfort and misery indices were rising during the period 2006-2015. The data for the 1st and 2nd quarters of 2016 show worsening results. The rate of inflation is now about 17.5 per cent while unemployment and underemployment averages 27 per cent in 2015. For the first two quarters of 2016, unemployment and underemployment increased to 32.6 per cent while youth unemployment rose at 49.5 per cent (NBS, 2016). Clearly economic activities are below full employment output in the Nigerian economy.

Table 2: Nigeria Economic Performance Indicator, Misery and Discomfort Indices, 2006 – 2015 (%)

| Year	EPI	MI	DI
2006	76.1	34.8	29.7
2010	68.2	30.3	34.8
2013	67.6	50.8	37.2
2014	73.8	55.08	33.4
2015	68.0	57.27	36.7

Source: Calculated by Author

Table 3. Nigeria: Rates of Unemployment And Underemployment

Year	Old (1)	New (2)	ILO (3)	Underemployment(4)	(2)+(4)
2010	21.4	5.1	1.9	16.3	21.4
2011	23.9	6.0	2.2	17.9	23.9
2012	27.4	10.6	7.6	16.8	27.4
2013	24.7	10.0	7.1	14.8	24.8
2014	25.4	7.8	4.8	17.5	25.4
2015 Q1	24.3	6.4	2.1	17.9	24.3
2015 Q2	26.5	8.2	4.0	18.3	26.5

Source: National Bureau of Statistics, Lagos.

The graphs below confirm the present state of the economy as well as the trending of relevant macroeconomic variables. In figure 5 below, the rate of unemployment is growing faster that the growth in productivity. In figure 3, the income per capita of Nigerians seems flat during the period 2012-15; before then, it was fluctuating from 1980-2011. The evidence so far confirms the desirability to diversify the economy away from oil. However, it should be noted that the oil sector itself is not diversified. The economy only exports crude and import refined products. The oil-sector should be linked to the pharmaceutical and chemical industries as well as the agricultural sector. This way the economy can benefit from having oil resource especially as the latter is a wasting asset. Diversification would generate employment, revenue for government and provide fiscal buffers to the economy in times of economic downturn.

Figure1. Growth rate of Real Gross Domestic Product
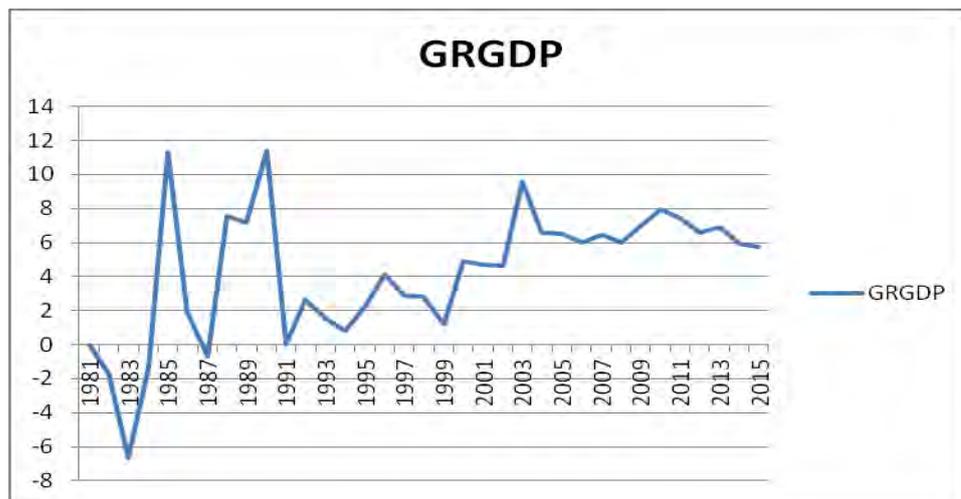
Source; CBN Statistical Bulletin 2015

Figure 2. Inflation rate and Growth rate of GDP
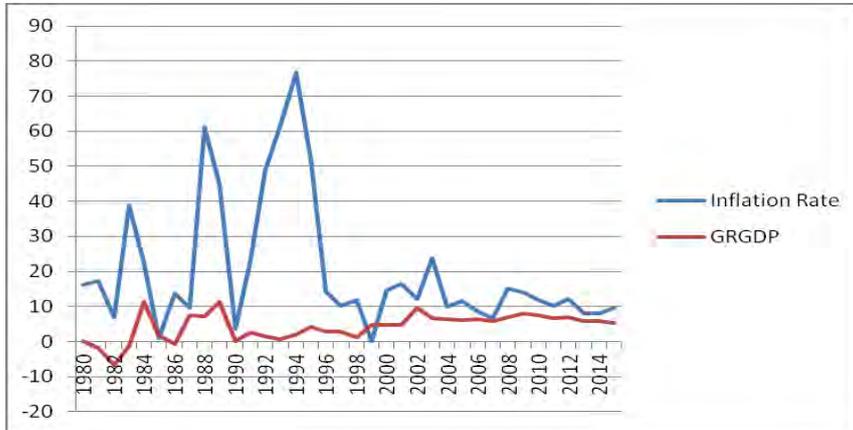
Source; CBN Statistical Bulletin 2015

Figure 3. Growth Rate Real GDP Per Capita Income
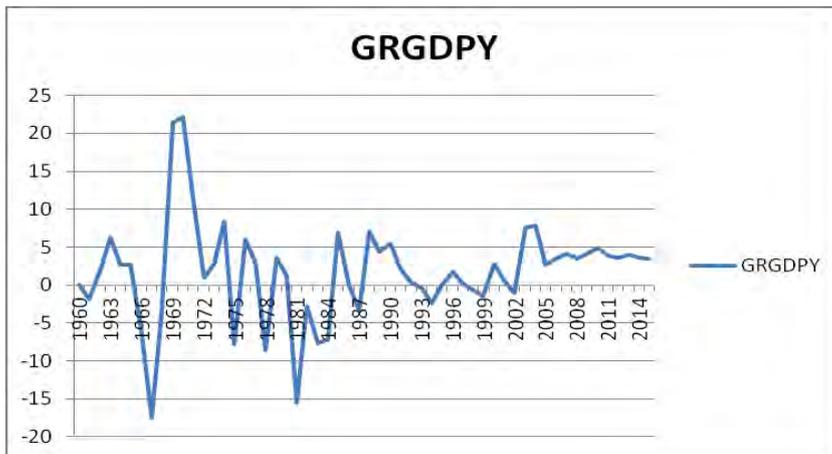
Source; WDI 2015

Figure 4. Growth Rate of Non-Oil Export
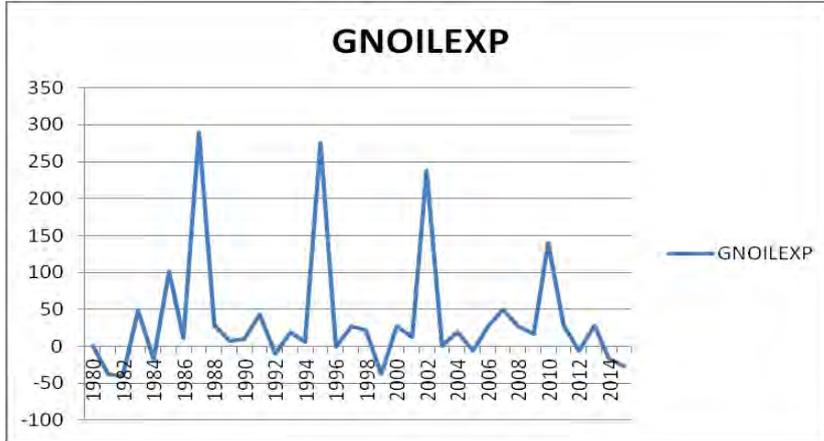
Source; CBN Statistical Bulletin 2015

Figure 5. Unemployment and real GDP Growth rate
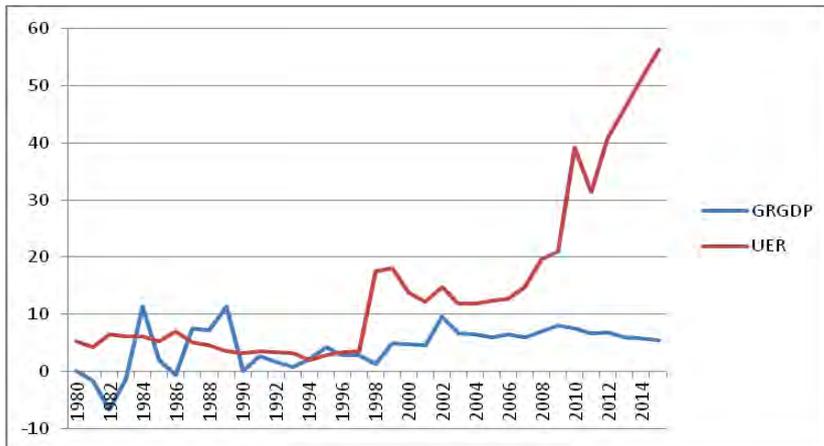
Source; CBN Statistical Bulletin and WDI 2015

4.   STRATEGIES FOR ECONOMIC DIVERSIFICATION:

Diversification requires certain key drivers. These include:

(i)   **A clear economic blue-print from the government.** This would involve comprehensive plans with sectoral initiatives coupled with targets. For example, based on the role of government, the blue print must see development as a top priority. Consequently, an economic blue print

would center around a development state economic thrust with a role for the private sector. States and local governments must buy into the blue-print to be effective.

(ii)   **The quality of leadership.** A visionary leader would galvanize the citizens for development. The leader's approach to governance would elicit support and enthusiasm from the followership. The positive attributes of a good leader would permeate all other levels of leadership among the co-operating states and in each state.

(iii)   **Peace and Stability.** These are both necessary and sufficient conditions for diversification towards sustained growth and development. Thus, peace must be guaranteed in order to attract non-oil investment which is a component of diversification.

(iv)   **Macroeconomic Stability.** This implies that relevant macroeconomic fundamentals such as growth, inflation, lending rates etc must move in the right direction in the economy. This would enable potential and domestic investors to plan and weigh costs and benefits of investing in the country. If there is instability in part of the country then it becomes rather difficult to attract foreign investors. For diversification to take place management of the economy must be robust.

(v)   **Human and Natural Resources.** Human resource (skilled and unskilled) is key to diversification. There are economies without natural resources such as Singapore, South Korea, Japan and Isreal but having such would be an advantage if properly managed. Education plays a crucial role in this context. A country that is generously endowed with human and natural resources has the potential to build a prosperous economy that can provide not only the basic needs of the people but also provide goods and services for exports. This is based on the notion that the natural resources extracted and exported can generate revenue that may be used to promote growth in other vital sub-sectors of the economy such as manufacturing, health, education, tourism, etc., thereby promoting economic diversification. On the other hand, human resources are the most invaluable asset of a country to improve its economy and social development. The critical role of development is to use the potential human and natural resources more productively. The core of the argument is that a country with enormous and highly educated or trained human resource base can impact positively on economic development. Natural resources have played a critical role in Nigeria's economic growth over the five decades. Traditionally, the country's economic growth has been driven essentially by two

commodity exports, initially agricultural exports, and later, export of crude petroleum. However, it should be cautioned that dependence on a few commodities for revenue exposes the country to the boom and bust of international commodity markets. Thus, there is need to exploit the untapped natural resources to diversify the export base of the economy. However, value must be added to mineral resources before export; otherwise it would be tantamount to elemental diversification.

(vi)   **Capacity building and Training.** This should be perceived as continuous; existing capacity would have to be trained to meet and /or adapt to new technology, for example.

(vii)   **Competitive Federalism.** The sub-national governments must not only co-operate among each other but must be seen to practice competitive federalism. Healthy competition among states would result in better service delivery and governance and foster diversification.

(viii)   **Building Infrastructure.** Nigeria has always been described as a country with enormous potential. The general belief is that this potential can be better harnessed in an environment where adequate infrastructures are provided to kick-start the economy. Empirical studies in extant literature overwhelmingly show a positive relationship between infrastructure and economic growth. For instance, improvement in transport and communication infrastructure would enhance the mobility of factors of production and eliminate wastages in the economy. This would be achieved by providing linkages between major economic activity centres and the periphery that provides the raw materials and other inputs of production and sustenance for the urban centres, thereby ensuring the availability of cheap output for the people. The country's efforts at improving its state of infrastructure have at best been dismal. Of particular concern is the power sector which has deteriorated over the years to the extent that it drove majority of artisans into the popular 'okada' transport business. Given her size of 924,000 square kilometres, and population of about 167 million people, it is embarrassing that the country is still struggling to generate below five thousand (5000) megawatts of electricity. In their *Africa Infrastructure Country Diagnostics on Roads in Sub-Saharan Africa*, a survey of countries' rehabilitation and maintenance of main road network, G William et al (2008) reveal that half of the countries in Africa are not devoting adequate resources to road maintenance. In the particular case of Nigeria, maintenance spending is less than half the norm requirement. In terms of policy, the survey also reckons that less than 50% of the roads in Nigeria are of good

quality while in the case of rural networks of roads, the study shows that less than 20% of the roads are of good quality in Nigeria.

(ix)   **Role of Government and Political Will.**

Government has important roles to play in economic diversification. First, it has to establish the regulatory framework that supports genuine economic activity that engenders healthy business environment. This involves the design and implementation of policies to boost fledgling sectors and ensuring that they can be developed in an environment that allows them to flourish and contribute more to national development. Second, government plays an important role in efficient coordination of the decision of the different policy makers and other stakeholders at all levels. This implies that government has to follow a consistent policy of growth and development and that policy should be based on a consistent focus on business and investment, on promoting foreign direct investment in the country and on setting up clear rules and regulations for business to thrive. There is also the need to build institutional and legal infrastructure to define and protect property rights. Government intervention is also important in responding to events that offer opportunities for economic diversification. For example, during global financial crisis with attendant volatility in prices of primary export commodities such as oil that serves as engine of economic growth for resource-based economy like Nigeria, it becomes imperative for the economy to rely on other growth drivers than the natural resource sector, that is, be diversified to cope with the prevailing economic realities. In the context of Nigeria, part of this response may entail a strategy of diversifying the economy away from oil base foundation. It may also take the form of joint venture activities in collaboration with the private sector and other non-governmental organisations.

(x)   **Role of the Private Sector.** With dwindling inflow of external aid in developing countries generally coupled with declining export prices of primary commodities, resources at the disposal of government become grossly insufficient to finance necessary infrastructural projects for smooth, efficient and sustainable economic development. Also, the private sector has a significant role to play in innovation and entrepreneurship through investment in research and development to ensure efficiency and competitiveness. In addition, the organised private sector (OPS) such as MAN, NACCIMA etc. should go beyond their traditional role of advocacy and lobby of government to reduce cost of doing business for the private sector to engage in internal restructuring

and capacity building to develop resource and manage projects that grow the private sector.

4. 1   Selected Diversification Initiatives

In this section, the paper presents sectoral initiatives for the diversification of the economy:

(i)   **Solid Minerals.** The Nigerian economy has many solid minerals. However, these minerals such as oil are non-renewable and would be exhausted at some point.   The country cannot depend on export of mineral commodities except value is added to the commodities and then exported. Hence, the economy must avoid mundane diversification (Omotor, 2016). In addition, the available solid minerals whether in raw or refined form must be utilized within the domestic market to generate employment as well as provide revenue for government. The volatility of commodity export prices suggests its unsustainability as a resource for financing development. Therefore, there is need to add value before exporting. However, in the short and medium terms, any windfall from commodity exports can be saved to counter the cyclical fluctuation of commodity prices. The example of Botswana regarding the export of diamond would be a useful case study.

(ii)   **Infrastructural Development.** Here the paper alludes to the essence of attracting and/or encouraging firms to invest in the provision of hard infrastructure outside of government. In other words, private firms should not only rely on government contract and patronage in this kind of investment. This would enable free movement of goods and persons within the country. It has positive multiplier effects. Notwithstanding, the existing power (electricity) projects, joint ownership of power plants would stimulate growth and fast-track the development of the region. Electrifying the country would attract domestic and foreign investors and generate job possibilities. For example, investment in ship building in partnership with known companies from Singapore would positively change the landscape of the region. The employment and skills, that is, the positive externalities arising from such an investment cannot be over-emphasized.

(iii)   **Agriculture.** The country is blessed with many agricultural resources. It would need to upgrade the research facilities to address the crop, trees, livestock, fishery and forestry sub-sectors. Research results would be beneficial to farmers in the country. In this regard, collaboration with existing universities would provide a robust synergy. The fishery resources in the south-south zone of the country are enormous, as indicated in global studies. Hence, the agricultural sector in its modern form provides

a strategic area for diversification. It would not only provide food but also inputs for industrialization, create employment, and generate revenue for the states.

(iv)   **Information, Communication and Technology (ICT).** Economic diversification must entail the possibility of creating a silicon valley in the country. This would provide an opportunity for young men and women to develop their talents to the fullest.

(v)   **Hospitality and Entertainment.** Nigeria is blessed with tourist attractions which need further development. The hospitality sub-sector if fully exploited would drive growth and development. Combining the cultural and traditional similarities and differences the tourist sector would provide an array of attractive festivities for tourists. Investment in the film sub-sector enhances economic complexity which is the hallmark of diversification. The economic benefit would be enormous particularly in terms of job creation.

The discussion above considers the fact that the country with a population of about 170 million has a large market as well as the global market to explore and exploit.

Nevertheless there are challenges which center around **Financing** the strategic diversification initiatives.

There are various financing options and partnership arrangements:
- Domestic resource mobilization such as debt, for example issuance of bonds including diaspora bonds
- External borrowing
- Grants from various agencies including multilateral institutions
- Public-private partnership
- Contractor financing

These financing options in themselves require innovative analysis to discern the best combination for the zone. These options have fiscal and other risks but a thorough analysis would provide an optimal mix of financing options.

5.   CONCLUSION AND RECOMMENDATIONS

The paper has examined the strategies for diversifying the Nigerian economy stressing the nexus between education, diversification and self-reliance. The structure of the economy shows the country is at the primary stage of development with heavy dependence on crude oil export and peasant agriculture. The dismal performance of the economy over the years coupled

with the current economic recession not only solidifies the case for diversification but also provides an opportunity to restructure the economy.

It argues that investing in solid minerals would not be a solution since in the long-run, such minerals are non-renewable. It would be tantamount to a kind of mundane diversification which involves only the natural resource sector of the economy. However, if value is added to its raw form before exported then the economy would benefit in the short and medium terms.

The paper has also examined key drivers for economic diversification and discussed sectoral strategic initiatives to include agriculture, infrastructural development, ICT as well as the hospitality and entertainment sub-sectors, among others. The important role of education, government and the private sector in driving the process as well as challenges are also articulated.

However, for economic diversification to be effective, sustainable and self-reliant there must be maximum commitment from government and other stakeholders. Nonetheless, the following recommendations are proffered:

❖   Form a technical committee to work out economic diversification for the medium to long term, suggesting which sectors to target.

❖   Stimulate economic diversification through procurement from local investors, develop infrastructure and provide start-up capital.

❖   Undertake an inventory of resource endowments/gaps in the country to determine area of comparative advantage for policy decisions.

❖   Economic diversification strategy envisages investment portfolios that will be managed by the private sector after initial government intervention.

❖   Ensure conducive business climate to encourage domestic and foreign investment to support economic diversification.

❖   Provide business regulatory environment to protect private property rights and investor rights to repatriate their investments and profits. This protection of investors is expected to encourage both foreign and domestic investors to make Nigeria the investment destination of choice.

❖   Ensure technological development, adaptation and innovation for competitiveness in a globalised economic environment to facilitate the development of Nigeria into a vibrant technology driven economy.

❖   It is important that education be properly funded at all levels. There is need to upscale the quality of public education at the primary and secondary school levels, including curriculum review.

❖   For economic diversification to succeed there must be emphasis on vocational and technical education.

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APPENDIX

Table A1: Nigeria: Sectoral Contribution to Real GDP at 1990 Constant Prices, 2012 – 2013 (Q$_1$ – Q$_2$) in %

Item	2012					2013	
	Q$_1$	Q$_2$	Q$_3$	Q$_4$	Total	Q$_1$	Q$_2$
Agriculture	34.47	40.69	42.62	38.20	39.21	33.69	40.06
Solid Mineral	0.33	0.38	0.43	0.37	0.38	0.34	0.40
Crude Petroleum & Natural Gas	15.80	13.86	13.42	12.59	13.76	14.75	12.90
Manufacturing	1.12	3.96	3.53	7.12	4.20	1.14	3.98
Telecommunication & Post	7.29	7.28	6.73	7.01	7.05	8.53	8.37
Finance & Insurance	4.07	3.98	2.92	2.83	3.37	3.96	3.95
Wholesale & Retail Trade	23.39	17.12	18.81	20.66	19.92	23.75	17.32
Building & Construction	3.01	2.21	1.68	2.09	2.19	3.27	2.39
Hotel & Restaurants	0.69	0.56	0.53	0.47	0.55	0.74	0.60
Real Estate	2.03	2.03	1.73	1.70	1.85	2.10	2.12
Business & Other Services	1.07	1.12	0.84	0.83	0.95	1.09	0.60
Others	6.74	6.81	6.76	6.13	6.58	6.66	6.74

Source: National Bureau of Statistics, Abuja.

Table A2. Nigeria: Sectoral Growth of GDP (1990 Constant Prices) 2012 – 2013 (Q$_1$ – Q$_2$) in %

Item	2012					2013	
	Q$_1$	Q$_2$	Q$_3$	Q$_4$	Total	Q$_1$	Q$_2$
Agriculture	4.37	4.21	3.89	3.62	3.97	4.14	4.52
Solid Mineral	11.65	11.72	12.61	13.59	12.52	12.00	11.84
Crude Petroleum & Natural Gas	-2.32	-0.73	0.08	-0.79	-0.91	-0.54	-1.15
Manufacturing	5.17	7.59	7.78	7.70	7.55	8.41	6.81
Telecommunication & Post	34.06	29.38	31.57	32.44	31.83	24.53	22.12
Finance & Insurance	3.57	5.01	4.08	3.48	4.05	3.61	5.18
Wholesale & Retail Trade	8.42	8.65	9.62	11.19	9.61	8.22	7.44
Building & Construction	13.28	12.73	11.52	12.55	12.58	15.66	14.87
Hotel & Restaurants	11.45	12.30	12.33	12.54	12.15	13.61	13.69
Real Estate	9.34	10.81	10.24	11.09	10.44	10.06	10.88
Business & Other Services	7.67	11.26	9.11	10.46	9.69	8.63	11.33

Others	4.97	4.84	5.25	5.57	5.18	5.37	5.06
Real Growth at Basic Prices	6.34	6.39	6.48	6.99	6.58	6.56	6.18
Non.oil Growth	8.14	7.63	7.55	8.21	7.88	7.89	7.36

Source: National Bureau of Statistics, Abuja.

Table A3: Nigeria: GDP at 2010 Constant Prices: (%) Distribution, 2014 – 2015

2014					2015					2016	
Item	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total	Q1	Q2
Agriculture	19.65	20.89	26.63	23.86	22.90	19.79	21.12	26.79	24.18	23.11	20.48	22.55
Industry	27.36	25.96	24.20	22.66	24.93	25.65	24.52	23.51	21.52	23.71	24.33	22.65
Services	52.95	53.15	49.16	53.48	52.15	54.56	54.36	49.70	54.30	53.18	55.20	54.80

Source National Bureau of Statistics, Abuja.

Table A4: Nigeria: Quarterly Real Growth of GDP by Sector, 2014–2015 (%)

	2014					2015					2016	
Item	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total	Q1	Q2
Agriculture	5.53	3.68	4.47	3.64	4.27	4.70	3.49	3.46	3.48	3.72	3.09	4.53
Industries	4.84	8.97	5.43	7.96	6.76	-2.53	-3.31	-0.13	-3.04	2.24	-5.49	-9.53
Services	7.20	6.54	7.61	6.15	6.85	7.04	4.67	3.97	3.69	4.78	0.80	-1.25
Real Growth Rate	6.21	6.54	6.23	5.94	6.22	3.96	2.35	2.84	211	2.79	-0.36	-2.06
Non-oil Growth Rate	8.21	6.71	7.51	6.44	7.18	5.59	3.46	3.05	2.44	3.75	-0.18	-0.38

Source: National Bureau of Statistics, Abuja.

DOES FINANCIAL SECTOR REFORM INFLUENCE INCLUSIVE GROWTH IN SUB-SAHARAN AFRICA?

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Abstract

This paper investigates the impact of financial sector reform on human development in sub-Saharan Africa (SSA), using the framework of traditional panel, dynamic panel and causality test. It employs a financial reform index developed in 2010 by IMF and time series data from 1980 to 2012 on a sample of 14 countries drawn from across the African continent. Results show that financial reform has a positive and significant effect on human development, and hence inclusive growth in the overall SSA countries. These results are similar in models estimated for each income groups, suggesting that financial liberalization in SSA has enhanced human development in the region in the past two and half decades. The causality test result shows that financial reform leads to human development in over a third of countries covered, confirming the pervasive influence of macro-financial policies in the continent. Other results from the estimated models indicate that a major way to improving quality of human development and inclusive growth in SSA is through education, and also by eliminating the destabilizing effects of inflation, resource dependence, and unproductive fiscal operations. To this end, policy makers in SSA should improve access to more diversified financial services, then currently exist promote strong institutions and adopt prudent management of resource wealth that would support inclusive growth, boost human development, and guarantee the attainment of inter-temporal, non-declining consumption amongst SSA countries.

JEL codes: E44, E59, O16, O55

1.0. INTRODUCTION

During the late 1970s and early 1980s, most African countries experienced severe distortions in their economic performance indicators[2], such as the drastic deceleration of GDP growth rate from 4.9 to 2.2 percent in the periods of 1976-1980 and 1981-1985, respectively. Following this, most countries in Africa adopted a number of measures, particularly the Structural Adjustment

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[2] Growth was fuelled by revenue from export of natural resources which make these countries susceptible to vagaries in the global economies. The phenomenal transfer of wealth to African countries during the resource-boom era and the bust that led to economic fragility are documented in Anyanwu et al. (1997), Iyoha and Oriakhi (2002).

Programme (SAP)[3] aimed at restoring macroeconomic stability and economic growth. Interestingly, financial sector reform was a major component of the broad-based economic reforms to boost the real sector and promote inclusive growth. Thus, between 1986 and 1996, the pace of financial sector reform evolved tremendously with various restrictions removed in a bid to foster liberalisation of financial markets throughout sub-Saharan African (SSA) countries, and to improve access and availability of long-term credit to the core-poor in the region. Ever since, the process of financial liberalism has become a powerful tool to ascertain whether social welfare has been enhanced or stunted. Recent data have shown that private credit by the banking sector has risen over figures in the early 1980s and 1990s across most SSA countries, thus revealing increasing tendency for the private sector in the region to rely on credit made available by formal financial institutions in the continent.

However, after over two decades of continued financial reform across SSA, economic performance in general and human development indices in particular, have not improved remarkably. For instance, human development report (HDR, 2013) reckons that SSA countries still rank high on poverty index while indicator for human development (a measure of societal welfare) remains low, compared to other regions in the world, a development that calls to question the extent the finance-performance nexus holds true in SSA. Thus, a key challenge of this study is to find out whether financial reform significantly influences human development in SSA? Is there a causal relationship between domestically-induced financial reform and human development in SSA? Can policy of financial reform explain the recent improvement in human development in the continent? This aspect of analysis appears to be missing in the literature. In light of the unsettled debate regarding the nexus between financial sector reform and human development, this study seeks to empirically evaluate the issue of whether policies of financial sector reform adopted in the past two and half decades have led to human development in SSA countries, and whether such impact is affected by income-level? Exploring the nature of these relationships would improve policy making and inform strategy that could support higher human development trajectory amongst SSA countries.

To achieve the aforementioned objectives, the paper is structured into five sections. Following this introduction, section 2 contains a review of related literature while section 3 provides the theoretical framework and methodology for the paper. The discussion of empirical results is presented in section 4. Lastly, section 5 concludes the paper with some policy recommendations.

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[3] The reform package included interest rate liberalization, removal of credit ceilings, policy to develop the banking/capital market, enhanced prudential regulation and privatization of state-owned enterprises (Senbet and Otchere, 2005).

2.0   REVIEW OF RELATED LITERATURE

2.1   Theoretical Considerations

2.1.1.   Concept of Human Development

Gross Domestic Product (GDP) is the most common indicator of the size of the economy and its change reflects economic growth or economic performance, GDP measures the total market value of all finished goods and services produced in the economy. A country with higher national output is considered wealthy, advanced and growing, amongst other countries with low or sometimes negative GDP growth rate. However, Stiglitz, Sen and Fitossi (2008); Jacobs and Šlaus (2010); and OECD (2013) argue that GDP captures only a part of economic welfare and excludes other dimensions which also matter for well-being. Hence, using GDP only to measure national productivity and welfare may overly exaggerate actual economic situation, more so due to the rapidly changing economic structure of countries. This drawback reflects the mixed composition of GDP which includes categories of expenditure, such as military spending and general administration, which are not directly related to household income, expenditure and consumption.

Consequently, there has been a growing interest in finding other indicators to capture the rate of economic performance of countries, especially measures which take into consideration factors that contribute to social progress and welfare. One of such indicators is the human development index, (HDI) developed by the United Nations Development Programme (UNDP), to serve as measure of how well a country has performed, not only in terms of real GDP growth, but also in terms of social indicators of people's ability to lead a long and healthy life, to acquire knowledge and skills, and to have access to resources needed to afford a decent standard of living. HDI looks at three outcomes of development: state of health, level of knowledge and skill, and the level of real income. It is in this regard that some economists consider HDI statistic as a broader measure of economic performance than GDP.

While growth-oriented policies may increase a nation's total wealth, the translation into 'functionings and freedoms' is not automatic. Inequalities in the distribution of income and wealth, unemployment, and disparities in access to public goods and services such as health and education, are all important aspects of well-being assessment. The HDI thus, serves as a frame of reference for both social and economic development, the index can take ranges from 0 to 1. Score close to 0 or 1, shows low or high levels of human development, respectively. Although, some critics of the use of HDI believe that human development is a broad concept which cannot be captured in one composite index, and as such the HDI does not cover all the multiple dimensions of societal

well-being. There is no doubt that the index currently leaves out important dimensions of human development, such as political freedom, environmental sustainability and degree of people's self- respect. However, the HDI is still a more powerful indicator of well-being, than the conventional use of gross domestic product measure, and is increasingly being used as a benchmark to question national policy choices and outcomes.

2.1.2.   Measurement of Financial Reforms

To measure domestic financial reforms, the paper uses an index derived from the financial reform database by Abiad, Detragiache, and Tressel, (2010), which covers 91 countries. Only 14 SSA countries are included in the database of financial reform index, thus limiting the scope of the study. The index is the normalized sum of seven (7) sub-indices that track the presence of restrictions, and consequently extent of financial liberalization. Broadly, financial reform can be classified into two, namely, internal liberalization and external liberalization. While internal liberalization involves the decontrol of interest rate and government interventions, especially in the domestic financial economy, external liberalization, on the other hand, covers capital account liberalization and policy on securities market to increase foreign participation in the domestic financial sector. To measure domestic financial reform this study takes a simple arithmetic average of the first five (5) dimensions of policies on financial reform, excluding capital account liberalization and securities market policy. These include credit controls and excessively high reserve requirements, interest rate controls, entry barrier, state ownership in the banking sector, and lastly, prudential regulation and banking supervision.

Thus, the emphasis is to explore the impact of domestically-induced policy of financial reform on human development in SSA, thereby excluding the possible influence of liberalization of the capital account and stock market. Hence, the emphasis explaining the effects of banking sector reforms on human development using data obtained for 14 SSA countries.

2.2   Stylized Facts on Human Development Indicator (HDI) of SSA Countries

In contrast to the situation in the 1980s and early 1990s, SSA countries witnessed improvement in economic output/production, but the moderate expansion in the gross domestic product (GDP) does not translate into remarkable improvements in human development in the region. Recent Human Development Report, HDR (2013) show that human development statistics for SSA countries still ranks low, compare to other regions (see Figure 1). The low scope of human development in SSA further underscores the International Labour Organisation (ILO) declaration of Philadelphia in 1944 that poverty anywhere is a threat to prosperity everywhere. Numerous studies have linked poor access of households to credit in Africa as the reason for the existence of

low growth and poverty in the continent (see Galor and Zeira, 1993; Claessens, 2005; Demirguc-Kunt and Maksimovic, 2005).

Human Development Indicator: SSA and Other Global Regions.
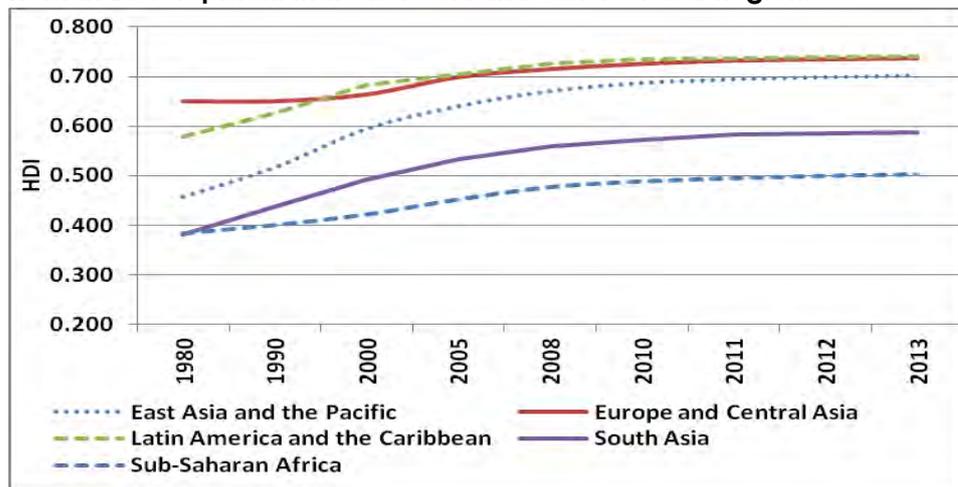
Source: Authors, but underlying data from the HDR (2013).

Meanwhile, the World Bank (2010) reckons that Africa accounts for 28 percent of total global poor and 1 percent of global GDP, 2 percent of global trade and 3 percent of foreign direct investment as at 2009. After about three decades of continued financial sector reform across SSA countries, human development remains low, although the end-2013 value reveal some improvement over the 1980s and 1990s figure. Thus, the short spell of growth success story in the continent, especially before the global economic recession of 2008, shields the reality of unsatisfactory developmental performance in many countries in Africa. Thus, building inclusive financial sector of the economy as hypothesized would improve people's life, especially that of the poor. This enables people to invest in better education, nutrition, and housing. Studies have shown that countries where significant proportion of the population is excluded from formal banking sector will have lower propensity to mobilize savings, and thus show higher poverty ratios, as well as inequality.

2.3   Finance - Human Development Nexus: Theoretical Perspectives

Most developing regions, SSA inclusive, embarked on financial reform and the use of other macroeconomic policy tools to attain sustainable economic growth, while also achieving their poverty reduction goals. The main theoretical underpinning often used in understanding the linkage between finance, economic growth and income by development economists is the Trickle-Down Theory of development. Aghion and Bolton (1997), for example, explain the

theory based on three conclusions from their model. First, when the rate of capital accumulation is sufficiently high, the economy converges to a unique invariant wealth distribution. Second, even though the trickle-down mechanism can lead to a unique steady-state distribution under laissez-faire, there is room for government intervention to redistribute wealth from the rich lenders to poor and middle-class borrowers to improve production efficiency and greater equality of opportunity, while also accelerating the trickle-down process. Third, the process of capital accumulation initially has the effect of widening inequalities but in later stages, it reduces them.

In sum, proponents of the trickle-down theory argue that economic gains by the wealthy and investors through tax cuts would result in investments that ultimately lead to more jobs for the middle and lower classes by creating economic growth that increases demand for goods and stimulates production. The trickle-down theory postulates that economic growth would either trickle down to the poor through job-creation, and other economic opportunities or create the necessary conditions for the wider distribution of the economic and social benefits of growth (Aghion and Bolton, 1997; Jalilian and Kirpatrick, 2007; and Odhiambo, 2010a&b). Another theoretical model is the popular Kuznets's inverted-U hypothesis[4]. Infact the final conclusion of Aghion and Bolton (1997) is somewhat similar to the inverted-U hypothesis. The hypothesis suggests that at the early stage of growth and development, income inequality rises sharply, but declines as the economy matures and become more industrialised. The ensuing theoretical link is that a liberalised financial sector promotes economic growth, which in turn, can lead to poverty reduction and improved human development.

Thus, Perkins, Radelet and Lindauer (2006), argue that adopting deep financial strategy that enhances savings mobilisation and credit availability to all types of domestic investors would boost income, employment and human development growth. In line, Green, Kirkpatrick and Murinde (2006) opine that financial sector by encouraging small and medium enterprises contribute to poverty reduction and economic growth. Jalilian and Kirpatrick (2007); and Odhiambo (2010a/b) find that financial deepening through improvement in intermediating efficiency lowers cost and improves access to credit by the poor. Productivity could improve generally as the number of unbanked people declines due to absorption into formal financial institution, thereby boosting their capability and economic welfare.

Also, some theorists have used endogenous growth models to explicitly show the important role that financial development plays in stimulating the real sector of the economy, and the attainment of steady-state growth equilibrium

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[4] See Kuznets (1955) and Kuznets (1963) for more interesting analysis

(Greenwood and Jovanovic, 1990; Bencivenga and Smith, 1991; Pagano, 1993; and Acemoglu, et al., 2006). These theorists aptly demonstrate how a healthy and developed financial system can propel economic growth, as it better allocates resources and fosters inclusive growth. Some authors have also identified financial reform and, consequent broadening of the financial sector, as a critical factor in inclusive development because it eases access to credit and boost entrepreneurship (Levine, 2005; and Beck 2011).

2.4   Empirical Literature

The financial liberalization theory holds that the process of liberalizing the domestic financial system enhances monetary policy effectiveness which should be reflected in improved intermediation efficiency, thereby supporting increased domestic savings, amongst others. Nissanke and Aryeetey (1998), and Guiso, Sapienza and Zingales (2006) argue that bank deregulation should improve access to credit due to removal of credit constraint, as well as lower interest rate spreads following increased competition. To this end, financial sector reform and, consequently, financial development, thus becomes a veritable conduit to improving societal welfare, as it reduces income inequality amongst economic agents in the society.

Financial development, induced by policies of financial reform policy, affects savings and investment decisions. Researchers such as, Schumpeter (1911); McKinnon (1973); Shaw (1973); Greenwood and Jovanovic (1990); Bencivenga and Smith (1991); King and Levine (1993a); De Gregorio and Guidotti (1995); and Greenwood and Smith (1997) contend that well-functioning financial system can promote overall economic efficiency because it can mobilize higher level of savings, enhance capital accumulation, transfer resources from traditional (non-growth) sectors to modern growth-inducing ones, and also promote a competent entrepreneur response to business opportunities. Increases in access to credit by the private sector, especially to small and medium scale enterprises, could stimulate entrepreneurial development which should lead to a fall in unemployment and improve societal welfare. In fact, lack of access by households and would-be entrepreneurs to credit is often cited as a barrier to development in poorer countries (OECD, 2014)

In an economic system where financial markets are segmented into formal and informal (curb market) sectors, financial liberalisation may lead to decline in the curb market lending rates. As more borrowers have access to the formal market, the curb market may decline (Chipeta, 1994). If the players in the curb market are to compete and remain active, they will have to lower their lending rate compared to cost of fund in the formal sector. This benefit of lower interest rates will result in a gain to the whole economy since some borrowers who are

rationed out of the formal financial market will have access to credit to engage in trading activities (Chipeta, 1994).

Rajan and Zingales (1998); Beck, Demirguc-Kunt and Maksimovic (2005) show that countries with deeper financial system also experience quicker fall in income inequality and poverty rates. Intartaglia (2014) empirically examines the effect of financial development on poverty for a sample of developing countries from 1985 to 2008. The analysis provides some evidence in favour of a mitigating effect of financial development on the poor when poverty is measured by the headcount index or the poverty gap at the cut-off line of $2 per day (absolute poverty). This finding is found to be robust to choice of a more conservative poverty measure based on $1.25 per day. The study finds little evidence that financial development reduces poverty, when poverty is measured in terms of relative poverty, that is, income share of the bottom quintile.

Berthelemy and Varoudakis (1996) observe that insufficient financial development has often created a poverty trap, through limiting the capacity of savings and its allocation, and hence has become a severe obstacle to economic growth even when a country has other necessary conditions for sustained economic development. Access to financial services (savings and loans) by households is increasingly recognised as linked to growth and poverty reduction. Some studies suggest that financial market imperfection may be particularly harmful to poor entrepreneurs without collateral, credit histories, or connections (see Galor and Zeira, 1993; Gulde, et al., 2006). Credit constraints that limit poor households' ability to finance high-return projects can reduce the efficiency of resource allocation, lower growth and poverty reduction. Evidence indicates that finance is a binding constraint to firm growth, even for new firms that rely on external finance (Beck, Demirguc-Kunt, and Maksimovic, 2005).

It is often argued that the efficiency and quality of the financial system is measured by size of domestic interest rate spread (see Koivu, 2002). A wide spread thus, potentially has a negative effect on investment, real per capita income, human development, and also may aggravate economic hardship. As noted by Chirwa, (2001), competitive pressures that result from condition of free entry and competitive pricing could improve financial efficiency by decreasing the spread between deposit and lending rates. With financial liberalization, and as oligopolistic market power decline on the short-run to a more and more competitive arrangement, the margin is expected to narrow considerably on the long run, thus improving firms' profitability.

Rajan and Zingales (2003), for example, argue that financial sector reform may be an important strategy to raise the size of domestic savings channeled through the formal financial system, improve financial intermediation efficiency,

as well as directly or indirectly enhance the resilience of the macroeconomic environment. To the author, financial inclusion of vast majority of previously unbanked persons through the process of reforms raises the volume of available credit that supports entrepreneurship, investment and human development. Beck, et al. (2012) find financial reforms to benefit the poor disproportionately more than the better-off, if reform measures help to relax credit constraints that affects them, while Pagano and Pica (2012) provided evidence that financial development is positively associated with employment growth in developing countries, but may increase job reallocation by facilitating the transfer of resources from low-growth to high-growth sectors. However, financial development was observed to amplify output and employment losses during financial crisis, and firms that rely most on banks for liquidity are hit the hardest.

Meanwhile, some studies have found negative impact of finance on economic performance matrices. Greenwood and Jovanovic (1990), for example, find greater financial depth to widen income gaps, if it enables the better-off to have easy access to credit even at cheaper cost for identified profitable projects, compared to individuals with low income and are excluded from access to bank credit. Obadan (2006) explains how weak or poorly regulated financial institutions can make a country highly vulnerable to economic and financial crisis which may disproportionately burden the poor. Specifically, a study by Kakwani and Pothong (2000) using data for Thailand, finds persons in the lowest income stratum to be hurt the most during financial crisis than other income groups in the country. Aghion, Angeletos, Banerjee, and Manova (2005) confirm the existence of linkages between financial development and growth volatility, especially in developing countries. Bayoumi (1993), using UK data from 1971 to 1988, observed an inverse relationship between financial liberalization, which involves the relaxation of credit constraints, and savings pattern in the banking system. The study posits that by removing constraint to borrowing, economic agents increased their consumption rate, rather than savings, and thus negatively affect the pace of financial development and economic growth. Japelli and Pagano (1994) used data from European countries to show that after a certain threshold, further financial liberalisation could have negative welfare implications.

3.0   BASIC THEORY, MODEL SPECIFICATION AND METHODOLOGY

The framework for this study begins with the traditional Cobb-Douglas (CD) production function. Using the standard Solow growth model, we specify an aggregate CD production function with two factor inputs as:

Y = f(K, L) = $AK_t^\alpha L_t^{1-\alpha}$

where 0 <α < 1 ……………………………………………….. (1)

Labour (L) and capital (K) play significant role as input in generating desired level of output, which also have remarkable influence on equilibrium growth rates of output. The output factor, Y, in *Equation (1)* stands for human development, which we captured by the human development index (HDI) for 14 SSA countries included in the new financial reform database developed by Abiad, Detragiache, and Tressel, (2010). The factor, A, captures the technological progress and is assumed equal across all economic units in the economy.

The CD function is modified by incorporating finance into the equation as enabler of inputs in the process of generating output. The choice of modeling strategy adopted for this study is based on the fact that financial intermediation is a veritable input that translates into economy-wide benefits. Financial sector, through policies of financial reforms, mobilizes savings, and thus, provide fund-seekers with the required credit for investment, thereby improving human capabilities, income and overall economic performance. Consequent upon that, financial sector reform[5] variable is included as input in CD function in the process of attaining broad-based human development. Also, accounting for the respective economic structure of most SSA countries, and the fact that these countries rely mainly on natural resources (NR) for fiscal sustenance, *Equation (1)* above is modified as:

Y = f(FINR, K, L, NR)   (2)

From here, the paper decomposes capital stock, K, and labour, L, in line with their dynamics in a typical economy. The dynamics of K at time t depends on accrued savings (which is a function of interest rate) and current labour income; while L depends on natural growth rate of the population. The dynamics of K and L over a two period case is given in *Equation (3)* and *Equation (4)*, respectively.

$$\sum_{t=1}^{2}\left[K_t\right]^{\alpha} = S_t * R_{t-i} * L_t * W_t \tag{3}$$

$$\sum_{t=1}^{2}L_t = (1+n) * L_t \approx L_t^{(1+n)} \tag{4}$$

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[5] Some theorists like, Newlyn and Avramides (1977), believe that financial sector can be ranked *pari passu* with other numerous inputs in the production process.

After modifying *Equation (2)* with the dynamics of K and L, are estimated model in natural log-form including a constant and error term, yields *Equation (5)*, which is:

$$InY = \alpha_0 + \alpha_1 In(FinR_t) + \alpha_2 In(S_t) + \alpha_3 In(R_t) + \alpha_4 In(W_t) + \alpha_5 In(H_t) + \alpha_6 In(NR_t) + \varepsilon_t \qquad (5)$$

Where: InY is human development (captured by HDI); $In(FinR_t)$ is financial reform policy, and is derived from a financial reform database that captures gradual policy changes in financial sector of each 14 sampled SSA countries. The financial reform variable is expected to have a positive effect on human development in all countries; $In(S_t)$ is the growth of national savings; $In(R_t)$ is the interest rate related variables; $In(W_t)$ is growth in wealth-related variables, like public sector (fiscal) dominance; $In(H_t)$ is human capital development measured at time *t*; $In(NR_t)$ is natural resource rent to capture economic structure of countries in the SSA region.

In all empirical analysis, the study estimates and presents results obtained using the traditional panels methodology, namely fixed- and random-effects modeling. The study also explores the relationship between financial reform and inclusive growth (measured by human development) using dynamic panel method. This choice is driven by the fact that the dynamic panel in a generalized method of moments (GMM) framework addresses the potential issue of endogeneity problem in data, and the study follows approach developed by Arellano and Bond (1991). In particular, this study uses the system GMM approach which combines both regressions in differences and in levels as suggested by Blundell and Bond (1998) to obtain robust results. The reason is that including lagged dependent variables as regressors renders OLS estimator in a fixed-effect model biased and inconsistent resulting in inefficient estimates. More so, if lagged dependent and explanatory variables are persistent overtime or nearly a random walk, then lagged levels of these variables are weak instruments for regression equations in differences. The study reports both the fixed- and random-effects models, but choice of model depend on results obtained using the Hausman model specification test, which then is compared with estimates from the system GMM framework.

 Apart from conducting panel estimation using the 14 SSA countries with proof of financial reform documented in the database by Abiad, et al. (2010), we also investigated the relationship between financial sector reforms and human development by exploring whether income levels of countries matter. Hence, income-effect is accounted for by conducting separate panel data estimations for different income classification of countries, and compare results with

estimates obtained in the full-sample. The 14 countries in our sample cut across three (3) out of the four (4) 2012 World Bank income classifications namely: low-income, lower-middle-income and upper-middle-income economies. See *Appendix (1)*. In the classification, countries are categorised as Low income ($1,045 or less); Lower middle income ($1,046 to $4,125); Upper middle income ($4,126 to $12,745) and High income ($12,746 or more). However, the study uses the ordinary least squares method (OLS) to estimate the relationship between human development and financial reform policy for the upper-middle-income group since it contains only South Africa. (See Appendix 1 for the list of countries and their income group).

4.0   EMPIRICAL ANALYSIS

4.1.   Panel Unit Root and Cointegration Tests

The paper employs Im, Pasaran and Shin (IPS, 2003) panel unit root tests to examine the time series properties of the variables. The major strength of the IPS test is that it allows heterogeneity on the coefficient of the variables while proposing a test procedure based on the average individual unit-root statistics. It is the assumption of heterogeneity on the coefficient of the variables that makes the application of IPS unit root tests well-suited for cross-sectional and panel data analysis. Another test method often used in studies is the Levin, Lin and Chu (2002) unit root test, but has a major drawback for placing restriction on the autoregressive coefficients, *p*, for all panel members and hence assumes homogeneity across all individual countries. Knowing that there are differences in socio-economic and political structures in most countries, this study employs the IPS test procedures.

Table 1: Unit Root Tests Results

Details	Im, Paseran and Shin (2003) Unit Root Tests. Stationarity Tests		Remark
	Value	Probability	
Financial reform	-6.514	0	I(1)
Human Development (HDI)	-8.288	0.0009	I(1)
Real Interest Rate	-15.546	0	I(1)
Natural Resource Rent	-7.398	0	I(1)
Inflation	-5.435	0	I(1)
Government Consumption	-3.389	0.0041	I(1)
Secondary School Enrolment	-4.718	0	I(1)

Source: Authors' Computation.

The results in *Table 1* show that financial reform, human development, real interest rate, natural resource rent, inflation, government consumption and secondary school enrolment rate are all stationary at first difference, meaning the variables are integrated of order I(1).   Given these properties of the variables, the study proceeds to ascertain whether there is any long run cointegrating relationship among the variables using approach proposed by Pedroni (2004). The good features of Pedroni's test follows from the fact it allows for multiple regressors and for the cointegrating vectors to vary across different sections of the panel, and also for heterogeneity in the errors across cross-sectional units.

The panel cointegration test shows evidence of a cointegrating relationship as depicted by the significance of the 'between' and 'within' dimensions, using the Pedroni cointegration test. The result in *Table 2* provides evidence of existence of meaningful cointegrating relationship. The Panel v, rho, PP and ADF-Statistics for the common AR coefficients (Within Dimension) and Group rho, PP and ADF-Statistics for the individual AR coefficients (Between Dimension) are all significant at the conventional test levels as shown in *Table* 2. The test is conducted to ascertain the reliability of proceeding on panel pooling of countries data and analysis. Hence, the result from cointegration test supports panel pooling procedures in this study.

Table 2: Panel cointegration tests results using Pedroni approach

Details	Common AR Coeffs. Within Dimension			
	Statistic	Probability	Weighted Statistic	Probability
Panel v-Statistic	-1.118	0.06	-1.698	0.09
Panel rho-Statistic	1.004	0.04	1.739	0.05
Panel PP-Statistic	0.842	0	1.943	0.01
Panel ADF-Statistic	0.519	0.01	1.433	0.02
Details	**Individual AR Coeffs. Between Dimension**			
	Statistic	Probability		
Group rho-Statistic	1.866	0.06		
Group PP-Statistic	2.057	0.03		
Group ADF-Statistic	1.663	0.05		

Source: Author's Computation.

4.2   Autocorrelation and Hausman Specification Tests

The Hausman's model specification test shown in the lower section of *Table 3* reveals preference for the random-effect model, compared to the fixed-effects model, since the Chi-Square value reported is 22.07 with a probability value of 0.108. Thus, the study accepts the null hypothesis, that random effects model will, under this situation, produce consistent and efficient results, thereby rejecting the alternative hypothesis. However, the study reports results for the fixed-effect models for emphasis. For the dynamic panel model, the Sagan test results shown in the lower portion of *Table 3* suggests that the instruments included are valid, hence, we accept the null hypothesis. Also, the second order autocorrelation tests reported by the z statistics of -2.78 and a probability value of 0.773, rejects the existence of second order autocorrelation, and thus we accept the null hypothesis of no autocorrelation.

4.3   Discussions of Empirical Results

From *Table 3*, the coefficient of aggregate financial reform (FINR) is positive and significant in the random-effects model and the one-step dynamic panel model at 1% and 5%, respectively. Although the relative effects of domestic financial reform on human development is weak in the overall SSA sample, the results however, show that a 100% increase in efforts at financial sector reform in the region would lift human development marginally by about 0.9% and 2.0% according to results from our random-effects and dynamic panel models, respectively. Positive effects of FINR on poverty reduction can be seen in studies such as Sowa (2002); Arestis and Caner (2004); Bakwena and Bodman (2008, 2010); and Zhuang, et al. (2009); and IMF (2013). Government consumption shows an inverse relationship with human development, but effect was only significant at the 5% level in the random-effects model. Studies showing similar results include Thompson (1993), King and Levine (1993b), Mauro (1998), Fosu, Bates and Hoeffler (2006), and Shera (2011). The coefficient representing inflation is negative, confirming that higher inflation rates have detrimental negative effect on economic growth, via its immiserising impact on human development and this finding is in consonance with studies like Bruno and Easterly (1996), Ahmed and Mortaza (2005). Coefficient of natural resource rent (% of GDP) was significant only in the one-step system GMM, but carried a negative sign in all estimated models, suggesting the existence of resource-curse effects on human development in SSA countries. See studies by Sachs and Warner (1995), Sala-i-Martin and Subramanian (2003), Oyefusi, (2007), and Mehrara and Rezaza, (2011). Real interest rate was negative and performed remarkably well at the conventional 5% significance test levels in all specified models, suggesting that real interest rate dynamics is a potent determinant of

human development in the region. Human capital, proxied by secondary school enrolment rate, was positive and highly significant at the 5% level. It is argued in the literature that more educated persons receive higher life-cycle income and are more productive, thereby improving capacity to attain self-sustaining growth and development (See Schultz, 1961; Okojie, 1995; Burnett, Marble and Patrinos, 1995).

For robustness checks, the study conducts a panel analysis for each income groups to ascertain whether differences in SSA income groupings affect the extent to which financial reform policy influence human development in the continent. From *Table 4*, all coefficients of FINR in all our estimated models carried the expected sign. The coefficient of FINR is positive and significant at 5% in low-income economies, highly statistically significant at 1% in upper-middle-income economies, but only significant at 10% in lower-middle income economies. Although, the level of significance of FINR differs, the results however, show that policies of financial reform are having a fairly uniform positive impact on human development in SSA.

Table 3: Panel Modeling of Financial Sector Reform and Human Development in Overall SSA Sample (14 Countries)

Panel Estimation of the HDI Model				
Variables	**Fixed Effect Model**	**Random Effect Model**	**Dynamic Panel: one-lagged period**	**Dynamic Panel: two-lagged period**
	Coefficient	**Coefficient**	**Coefficient**	**Coefficient**
Constant term	0.415 (25.79)***	0.388(16.97***)	0.031(4.42***)	0.032(4.39***)
Lagged Value of HDI (-1)			0.929(6.15***)	0.923(19.06***)
Lagged Value of HDI (-2)			N/A	0.004(0.09)
Financial Reform (FINR)	0.001(0.11)	0.009(2.62***)	0.0204(2.29**)	0.0003(0.26)
Government Consumption (GCON)	-0.001(-1.35)	-0.0019(-2.03**)	-0.0003(-1.16)	-0.0003(-1.11)
Inflation (INF)	0.00003(0.34)	-0.0005(-0.55)	-0.00003(-0.51)	-0.00002(-0.41)
Natural Resources (NATR)	-0.0004(-0.61)	-0.0008(-0.90)	-0.00005-(-2.42**)	-0.00005(-0.42)
Real Interest Rate (RINTR)	-0.0003(-2.71**)	-0.0002(-2.63***)	-0.0001(-2.51**)	-0.00011(-2.52**)
Secondary School Enrolment	0.0006(2.34**)	0.001(5.77***)	0.0002(3.06***)	0.0002(3.03***)
No. of Observation	462	462	448	434
R-Square	0.809	0.665	0.939	0.937
Adjusted R-Square	0.785	0.654	0.938	0.936

F-Statistics (Prob)	34.12(0.000***)	15.076(0.000***)	98.02(0.000***)	79.98 (0.000***)
Hausa man Test	Chi^2 (9) = 22.07 (0.108)		N/A	N/A
Sargan Test			Chi^2 (18) = 30.44 (0.377)	
Test for Second Order Autocorrelation			Z = -2.78 (0.773)	

Note: *, **, *** indicates statistical significance at 10%, 5% and 1% levels. The variables entering the Dynamic model are in first difference. Both the fixed effects and random effects models are in levels. The dynamic model is based on the Arellano-Bond Estimation procedure

Source: Authors' Computation.

Table 4: Income-Effect Analysis: Panel Estimation Results on Effects of Financial reform on Human Development

Note: *, **, *** indicates statistical significance at 10%, 5% and 1% levels

Variables	Low-Income-Economies				Lower-Middle-Income-Economies				Upper-Middle-Income-Economies
	Fixed-Effect	Random-Effect	Dynamic Panel		Fixed-Effect	Random-Effect	Dynamic Panel		OLS Estimation
Constant	0.3290 (11.75)***	0.4463 (18.91)***	0.0401 (3.35)**		0.4080 (14.93)***	0.3126 (34.78)***	0.1283 (3.57)**		0.5259 (11.56)***
HDI(-1)			0.9129 (38.07)***				0.7226 (9.73)***		
FINR	0.0567 (4.52)**	0.0174 (2.22)**	0.00018 (0.05)		0.0021 (0.29)	0.0096 (1.91)*	0.0017 (1.96)*		0.0331 (6.13)***
INF	-0.0003 (-1.81)*	-0.0009 (-3.85)**	-0.00012 (-1.37)		-0.000097 (-0.53)		-0.0000172 (-0.12)		-0.0008 (-0.67)
CAB	0.0098 (0.79)	0.0271 (2.23)**	0.00043 (0.08)		-0.00359 (-12.86)***		-0.00117 (-3.63)**		0.000344 (0.64)
GCON	0.0000638 (0.05)	-0.0025 (-2.04)**			0.00053 (0.77)		0.000302 (2.56)**		0.00246 (1.96)*
SSE	0.00071 (1.21)	0.0017 (4.41)**	0.00021 (1.89)*		0.00011 (0.21)	0.0024 (8.28)***	0.00024 (2.55)**		0.00047 (2.40)**
NATR	-0.00120 (-0.66)	-0.0074 (-4.12)**	-0.00065 (-0.86)		-0.00092 (-1.93)*	-0.0026 (-11.69)***	-0.00017 (-0.46)		-0.000764 (-0.69)
RINTR	-0.00032 (-1.58)*	-0.00054 (-2.16)**	-0.00017 (-1.79)*		0.000060 (0.19)	;-0.000185 (-0.72)	0.000045 (-1.94)*		-0.00124 (1.98)*
No. of Obs	264	264	256		165	165	160		33
R²	0.7242	0.2407	0.8895		0.9305	0.6599	0.9609		0.8381
F-Statistics	12.39 (0.000)***	11.59 (0.000)***	285.47 (0.000)***		37.67 (0.000)***	77.61 (0.000)***	66.41 (0.000)***		18.49 (0.000)***

Source: Authors' Computation.

4.4   Granger Causality Test Results

To further understand the relationship between financial reform and human development in SSA, performed a country-specific analysis of the nature of causality in each sampled countries. The unit root test for each country was conducted using the Augmented Dickey-Fuller technique, and result is reported in *Appendix 2*. The results show that the variables are stationary at first difference in all countries, that is, the variables are integrated of order one, I(1). The Johansen cointegration test procedure was adopted to establish the existence of long-run relationship. Results of the test are presented in *Appendix 3*. Ghana and Kenya show no cointegrating relationships going by the *maximum eigen statistic* at the 5% critical value, but one meaningful cointegrating equation exists in Kenya when the *trace statistic* is used. The rest of the countries show varying degree of cointegrating relationships.

From the granger causality results in *Table 5,* there are a unidirectional causality running from financial reform to human development index in five countries namely: Cameroun, Kenya, Mozambique, Senegal, South Africa and Zimbabwe, representing over a third of countries covered. There is, however no clear flow of causation between financial sector reform and human development in the remaining countries, like Burkina Faso, Cote d'Ivoire, Ethiopia, Ghana, Madagascar, Nigeria, Tanzania and Uganda.

Table 5:   Granger Causality Test Results: FINR Vs HD

Country	Null Hypothesis	Chi-Square	P-Value	Conclusion
Burkina Faso	H_{01}	1.9431	0.3785	No Causality
	H_{02}	0.4773	0.7877	
Cameroon	H_{01}	5.9311	0.0515	FINR → HD
	H_{02}	1.8102	0.4045	
Cote d'Ivoire	H_{01}	0.4805	0.7864	No Causality
	H_{02}	2.6134	0.2707	
Ethiopia	H_{01}	1.0239	0.5993	No Causality
	H_{02}	1.3513	0.5088	
Ghana	H_{01}	3.2472	0.1972	No Causality
	H_{02}	2.7676	0.2506	
Kenya	H_{01}	5.9592	0.0508	FINR → HD
	H_{02}	4.1936	0.1228	

Madagascar	H_{01}	0.5242	0.7694	No Causality
	H_{02}	2.2680	0.3217	
Mozambique	H_{01}	6.1505	0.0462	FINR → HD
	H_{02}	3.9564	0.1383	
Nigeria	H_{01}	1.7216	0.4228	No Causality
	H_{02}	0.0072	0.9964	
Senegal	H_{01}	29.5173	0.0000	FINR → HD
	H_{02}	2.6521	0.2655	
South Africa	H_{01}	4.7815	0.0916	FINR → HD
	H_{02}	0.4708	0.7903	
Tanzania	H_{01}	3.8302	0.1473	No Causality
	H_{02}	0.0255	0.9873	
Uganda	H_{01}	0.6258	0.7313	No Causality
	H_{02}	0.7793	0.6773	
Zimbabwe	H_{01}	4.6400	0.0983	FINR → HD
	H_{02}	0.2899	0.8651	

Note: FINR (Financial reform), HD (Human Development). Null Hypothesis: H_{01}: FINR does not cause HD, and H_{02}: HD does not cause FINR. Where the notation; X → Y means, variable X causes Y values.

*Significant at 10%, **Significant at 5%, ***Significant at 1%.*

Source: Authors' Computation.

5.0.   POLICY RECOMMENDATION AND CONCLUSION

From the findings of the study the following policy recommendations: are proffered:

The positive relationship between policies of financial reform and human development in SSA shows that sustained financial sector reform over two and half decades ago has led to improvement in human development. This is especially so because reform measures in the region may have engendered the restructuring of financial system that eased access to credit for the vast majority of poor individuals and small-scale enterprises, thus improving overall welfare. Also, the result confirms that financial reform propels human development across all income groups in SSA, but the significance of the coefficient is more robust for countries in high income group. To this end, financial policy can effectively be used to boost overall development in human capabilities, and hence support inclusive growth in the region. The negative relationship between

government intervention and human development indicates how poorly executed government intervention, amid poor institutional quality, hinders human development in the SSA region, especially through crowding-out of private sector investment. Inflation also exhibits inverse relationship with human development since it causes price variability, reduces real savings and real value of income, and hence affects standard of living. Monetary authorities should aim at stabilizing the domestic macroeconomic environment through appropriate interest rate management. The findings in this study are in consonance with those of some influential papers that associate natural resource-abundance with greater inequality and poverty for a larger majority of a country's population.

Also other studies have conjectured that rent-seeking leads to misallocation of talent since such effort gets rewarded in shorter time frame than productive work. Earnings from the country's oil resources should provide a vent for economic diversification in order to insulate the economy from price volatility especially during periods of economic/financial crisis. Similarly, human capital development through education enhances total productivity, which ensures that educated individuals generate higher net-returns, compared to the uneducated, and as a consequence, raise economic and human development trajectories. Effort should be made to improve access to education and other formal training to improve overall human development.

In conclusion, the findings of the paper have shown that financial reforms when properly conducted are beneficial to attaining higher levels of human development in SSA. In order to optimize the positive influence of financial reform, monetary authorities should adopt appropriate policies that are pro-poor, through systematic removal of constraints that hinder access to credit for small and medium enterprises recognized as engine of economic development. A major way to improve the quality of human development, and thus, inclusive growth in SSA, is by removing the destabilizing effect of inflation, dependence on natural resources, rent-seeking in governance due their negative role on institutional quality and policy environment. To avoid these negative outcomes, governments of SSA countries should promote education, while also adopting proper management of resource revenues in line with developmental requirements to guarantee a non-declining production and income growth in the continent. Therefore, it follows that improved financial intermediation in the continent could perhaps be one of the key avenue to reducing the omnipotent presence of income inequality and low productivity in the region, with a view to boosting human development, and facilitating the attainment of inclusive growth in SSA countries.

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APPENDIX

APPENDIX 1: Sample SSA Countries and Income Group

Low-Income Economies	Lower-Middle Income Economies	Upper-Middle Income Economies
Burkina Faso	Cameroon	South Africa
Ethiopia	Cote d'Ivoire	
Kenya	Ghana	
Madagascar	Nigeria	
Mozambique	Senegal	
Tanzania		
Uganda		
Zimbabwe		

Source: World Bank (2012)

APPENDIX 2:   Unit Root Test Result (Augmented Dickey-Fuller Test)

S/N	Countries	Financial Reform						Human Development						Overall Remarks
		ADF Statistics (t-stat)	Prob.	Critical Values				ADF Statistics (t-stat)	Prob.	Critical Values				
				1%	5%	10%				1%	5%	10%		
1	Burkina Faso	-4.637	0.004	-4.27	-3.55	-3.21		-5.416	0.0006	-4.28	3.56	-3.21		I(1)
2	Cameroon	-3.607	0.0456	-4.28	-3.56	-3.21		-5.789	0.0002	-4.28	3.56	-3.21		I(1)
3	Cote d' Ivore	-4.433	0.007	-4.27	-3.55	-3.12		-6.725	0.0000	-4.28	3.56	-3.21		I(1)
4	Ethiopia	-3.990	0.0198	-4.28	-3.56	-3.21		-7.204	0.0000	-4.28	3.56	-3.21		I(1)
5	Ghana	-5.035	0.0017	-4.29	-3.56	-3.21		-6.495	0.0000	-4.28	3.56	-3.21		I(1)
6	Kenya	-4.670	0.0040	-4.28	-3.56	-3.21		-5.818	0.0002	-4.28	3.56	-3.21		I(1)
7	Madagascar	-5.259	0.0010	-4.31	-3.57	-3.22		-6.064	0.0001	-4.28	3.56	-3.21		I(1)
8	Mozambique	-4.667	0.004	-4.27	-3.55	-3.21		-6.540	0.0000	-4.28	3.56	-3.21		I(1)
9	Nigeria	-5.681	0.0003	-4.28	-3.56	-3.21		-4.895	0.002	-4.27	3.55	-3.21		I(1)
10	Senegal	-4.108	0.0154	-4.29	-3.56	-3.21		-6.304	0.0001	-4.28	3.56	-3.21		I(1)
11	South Africa	-5.915	0.0002	-4.28	-3.56	-3.21		-5.385	0.0007	-4.28	3.56	-3.21		I(1)
12	Tanzania	-5.202	0.0011	-4.28	-3.56	-3.21		-4.139	0.003	-4.33	3.58	-3.22		I(1)
13	Uganda	-4.713	0.0036	-4.28	-3.56	-3.21		-6.434	0.0000	-4.28	3.56	-3.21		I(1)
14	Zimbabwe	-3.524	0.0592	-4.39	-3.61	-3.24		-5.013	0.0017	-4.28	3.56	-3.21		I(1)

Source: Authors' Computation

APPENDIX 3:   Results of Johansen Cointegration Tests

Country	Eigen value	Trace Statistic	5% Critical Value	No of CE(s)	Eigen value	Max. Eigen Statistic	5% Critical Value	No of CE(s)
Burkina Faso	0.463251	42.11477	47.85613	1	0.463251	18.6667	27.5843	1
Cameroon	0.537161	47.79503	47.85613	2	0.537161	23.8816	27.5843	2
Cote d' Ivoire	0.729803	89.16859	99.81889	1	0.594697	24.3842	27.5843	2
Ethiopia	0.624113	39.74051	39.79707	2	0.624113	25.4401	26.1316	2
Ghana	0.615562	93.74917	95.75366	0	0.615562	29.6351	40.0775	0
Kenya	0.665819	66.25745	69.81889	1	0.703732	37.7111	40.0775	0
Madagascar	0.524237	36.92692	47.85613	1	0.524237	20.7993	27.5843	1
Mozambique	0.125435	2.948631	3.841466	5	0.125435	2.94863	3.84146	5
Nigeria	0.496028	43.22095	47.85613	2	0.668490	33.1229	33.8768	1
South Africa	0.528975	41.84037	47.85613	2	0.528975	23.3381	27.5843	2
Senegal	0.446928	27.91157	29.79707	3	0.656895	33.1613	33.8768	1
Tanzania	0.533944	29.68062	29.79707	3	0.533944	16.0324	21.1316	3
Uganda	0.960086	109.0557	119.8188	1	0.688991	23.3586	27.5843	2
Zimbabwe	0.773785	79.15028	89.81889	1	0.570199	20.2663	27.5843	2

Note: CE means cointegrating equations.
Source: Authors' Computation

COLLUSIVE OLIGOPOLY IN THE NIGERIAN BANKING SECTOR: EVIDENCE AND POLICY IMPLICATIONS.

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Abstract

A competitive and efficient banking system is critical to the success of any economy. Apart from providing credit, it serves as a channel for managing system liquidity, and ensures compliance with regulatory guidelines. In Nigeria, monetary policy transmission has been distorted by activities of deposit money banks (DMBs), leading to high lending rates and costs of banking services. This study utilises panel data analysis for monthly data from 2007 to 2014, for twenty banks. Reduced form interest revenue function is estimated and the H-Statistics are computed using the elasticities of input prices. Measures of market power, namely market share, concentration ratios (CR) for the 3, 4 and 5 largest banks (CR3, CR4 and CR5) and Herfindal-Hirschman Index (HHI) are regressed on bank's profitability indicators. It is found that CR3, CR5 and HHI are positive and significant, indicating concentration and market power enhance banks profitability, further confirming the presence of oligopoly in the Nigerian banking industry. Therefore, policies on competition regulations should be formulated and enforced. Moral suasion should also be adopted to persuade banks to allow a level playing field.

1.0   INTRODUCTION

The Nigerian banking industry has recently been consolidated to 21 banks from 89 banks through a wave of mergers, take-overs and acquisition. Consequently, a few deposit money banks (DMBs) have become extremely large, dominating in many core areas of business, such as branch network, asset size, volume of deposits and loans. This development has led to a new concentration structure, which in turn may have changed the land-scape of competition in the industry. In literature, concentration and competition have been identified as being inversely related (Giuliano, Giacomo and Andrea, 2007). A more concentrated banking system leads to a lower degree of competition, due to the unhealthy exercise of market power by a few big banks. Measures of banking market structure (captured by market concentration), have been identified as a good indicator of the intensity of competition, itself a measure of market conduct (Scherer and Ross, 1990).

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Furthermore, the degree of market competition influences the price of financial products and services, which is a function of firm level profit (a measure of performance). This triangular relationship between structure and conduct on the one hand and conduct and performance on the other, is known as Structure-Conduct-Performance (SCP) paradigm, a key concept and framework in the analysis and determination of the existence and nature of collusive oligopoly. A major question, therefore, is, does a firm's conduct affect its performance in the Nigerian banking sector? The answer to this question would help identify the existence and degree of market imperfection such as collusive oligopoly in the Nigerian banking industry.

The need to investigate the presence and degree of market competition (and in particular of oligopoly) in the Nigerian banking system is justified by a number of reasons. First, monetary policy transmission has been persistently distorted in recent years by activities of banks. The Nigerian monetary policy rate (MPR), to which other rates are expected to anchor, appears to diverge away from market rates such as the interbank rate, Open Buy Back (OBB) and other commercial lending rates. In the last several months, activities in the interbank market have remained negligible or non-existent, in the face of a tight monetary policy stance. The question of why changes in the policy rate (MPR) have not transmitted to market rates remains unanswered. Could the existence of oligopolistic tendencies (and collusion) be responsible for the lack of transmission? Monopolistic (or oligopolistic) pricing by banks tends to inhibit transmission of policy rate changes as fully as pure competitive pricing will do (Kashyap and Stein, 1997; Cecchetti, 1999; and Lensink and Sterken 2002).

Second, the degree of competition affects the prices that customers pay for banking services, which in turn determines the level of profits and performance in the industry. Bank lending rates have continued to diverge from a fairly stable policy rate (MPR), reaching a high of about 27%.

Third, DMBs are a major source and channel of liquidity in the economy. Private and public sector deposits constitute a huge chunk of the liquidity that goes through the banking system. In addition, their balance sheets contain assets that are classified as disposable assets which are easily convertible to cash. The level and management of the banking system liquidity is therefore of concern to the Central Bank due to the high cost of managing excess liquidity.

This work differs from other studies, and adds to existing literature in many ways. First, it is a major study of competition and conduct of the Nigerian banking system since the global financial crisis (GFC). Second, it is the first work using Nigeria data, which introduce structural break in the analysis, involving the

intervention of Asset Management Corporation of Nigeria (AMCON) set up in the aftermath of the GFC to clean the Nigerian banking system of its toxic assets. The structural break analysis enables the study to identify the historical changes in market competition, conduct and power in the industry. Third, it is arguably the first documented work to use industry performance indicators such as net interest margin and return-on-assets in measuring the impact of market power in the Nigerian banking industry.

The primary focus of this study is to test for the existence and degree of oligopoly and collusion, and suggest ways of breaking the unhealthy market power to enhance the overall competitiveness of the industry.

2.0   THE NIGERIAN BANKING INDUSTRY

The Nigerian banking industry is highly regulated, given its importance in the economy. Banking operations in Nigeria are governed by the Central Bank of Nigeria (CBN) Act (2007); Banking and Other Financial Institutions Act (BOFIA), 1991 as amended; Nigeria Deposit Insurance Corporation Act, 1988 (NDIC); Failed Banks (Recovery of Debts) and Financial Malpractices in Banks Act, 1994; Money Laundering Act, 1995; CBN Prudential Lines, as well as any other Monetary, Credit, Foreign, Trade and Exchange Policy guidelines that are issued periodically by the regulatory authorities.

There are 24 commercial banks in Nigeria, with 15 quoted on the floor of the Nigerian Stock Exchange while the remaining 9 are not. Of these banks, only five are foreign-owned, namely, Citibank, Ecobank, Stanbic IBTC, Standard Chartered and Nedbank, while Nedbank was granted a license in 2014. Therefore, the Nigerian banking system is such that the number of Nigerian banks operating branches in other African countries far exceeds that of the foreign banks operating in Nigeria (see Table 1).

Table 1: Countries with significant presence of Nigerian banks, 2012[1]

Country	Number of Banks	Number of Nigerian Banks	Asset share of Nigerian banks (% of total)
The Gambia	12	7	38.6
Ghana	26	7	16.2
Liberia[2]	8	4	26.3
Sierra Leone	14	6	40.2

[1.] The Gambia: Access, Bank PHB, Guaranty Trust Bank (GTB), Skye and Zenith Banks. Ghana: Access, GTB, Intercontinental, Oceanic, UBA, Union (HFC), Zenith. Liberia: Access, Bank PHB, GTB, UBA. Sierra Leone: Access, Bank PHB, GTB, Skye, UBA, Zenith.

[2] This number does not include Ecobank. Although headquartered in Togo, its largest operation is in Nigeria and its majority shareholders are also Nigerian. If Ecobank is included as a Nigerian bank, the share rises to 71% in Liberia.

Source: Alade, (2014)

Market structure indicators

In this section, the study computes and presents a number of market structure indices, namely market share, Herfindal-Hirschman Index (HHI) and concentration ratios (CR_n) for the Nigerian Banking industry. The indices are used to determine the structure and degree of concentration of the banking sector and the extent to which the existing structure affects the performance of the biggest banks compared with the others.

a.   Market Share

The market shares are computed for all banks using their deposits and credits in line with literature. The shares are used to derive concentration ratios (CR3, CR4, CR5) for three, four and five largest banks and for computing the Herfindal-Hirschman Index (HHI). The two measures gave similar results in terms of market share of the various banks in the industry (Table 2).

Table 2: Average Market Shares (Deposits and Credits) for 20 Banks between 2007-2014																				
Bank	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Deposit Mkt Share	6%	2%	2%	5%	4%	2%	4%	15%	4%	7%	4%	5%	2%	2%	2%	6%	11%	2%	1%	14%
Credit Mkt Share	7%	3%	1%	6%	5%	1%	4%	15%	5%	9%	3%	6%	3%	2%	2%	6%	9%	2%	2%	11%

Source: Computed from CBN Database

The average market share varies between 1 and 15 per cent, with banks 8, 20 and 17 as the largest in the deposit market. However, banks 8, 20, 17 and 10 are the largest in the credit market. A group of seven (7) and another group of four (4) banks possess a total of 14 and 16 per cent of the market share, respectively. This means that a single bank in the sector is larger than a cluster of seven smallest banks or almost as large as four medium-size banks, indicating some element of market imperfection such as oligopoly.

b.   Concentration Ratio (CR)

Table 4 contains concentration ratios in the Nigerian banking industry. It shows that CR3 is 40% while CR17 is 60%, implying that only 15% of the entire banks in the industry control 40% of the market share of deposits. Also four banks control 47% of total market share. Similarly, 55% of the market share is controlled by five banks, indicating that just 25% of the Nigerian banks control a higher proportion of the market when compared with the others. This development indicates a highly concentrated market, a necessary condition for market imperfection.

Table 3: Concentration Ratios for 20 Banks, 2007- 2014											
Deposit CR3	Deposit CR17	Deposit CR4	Deposit CR16	Deposit CR5	Deposit CR15	Credit CR3	Credit CR17	Credit CR4	Credit CR16	Credit CR5	Credit CR15
40%	60%	47%	53%	55%	45%	35%	65%	44%	56%	52%	48%

Source: Computed from CBN Database

$$CR_n = \sum_{i=1}^{n} di \ / \ D$$

where:

C_n = *The nth should be 3rd, 4th and 5th bank concentration ratios,*

i = *The number of firms,*

d_i= *The deposits (or credit) of the ith bank, and*

D = *Total deposits (or credit) of the banking industry.*

c.   Herfindal-Hirschman Index (HHI)

Using market shares, the study computes HHI was computed for the Nigerian banking Industry between 2007 and 2014 (Table 3). The average index ranges between 798 and 860. Although these figures do not indicate the presence of market imperfection (e.g. oligopoly), indications from extant literature suggest that HHI is not a sufficient condition for the presence of oligopoly (Shaffer, 1983; Shaffer, 1993, Shaffer and DiSalvo, 1994; and Bikker and Haaf, 2012).

Table 4: HHI For 20 Banks Between 2007 and 2014	
Year	**HHI**
2007	859.85
2008	817.10
2009	818.46
2010	822.25
2011	830.02
2012	809.67
2013	797.57
2014	801.68

Source: Computed from CBN Database

The Herfindal-Hirschman index (HHI) is computed as the sum of squared market shares in percentages.

The usefulness of HHI in the determination of market structure is directly dependent on an accurate characterization of market structure. Rigorous econometric analysis is therefore required to determine the presence of imperfect competition in the Nigerian Banking Industry.

3.0   REVIEW OF RELEVANT LITERATURE

Many theoretical and empirical studies debate the issues surrounding concentration and competition in the banking system and their impact on the entire economy. The debate has attracted a lot of attention. Three major strands of the argument are discernible: **The first strand** contends that competitiveness in the banking systems has the capacity to stimulate economic growth by expanding firms' access to finance (Beck, Demirgüç-Kunt, and Maksimovic, 2004; Pagano, 1993, among others). Some of these studies **demonstrate that increases in the market share of small banking firms facilitate economic growth** (Lin and Sun, 2008). This viewpoint tends to support societal viewpoint, which suggests that the competitiveness of banking industry is a socially desirable policy, as it tends to minimise intermediation and transaction costs as well as improve household welfare by providing efficient and high quality banking services (Simpasa, 2013). This line of thought is generally consistent with orthodox economic theory that predicts that competition in the banking system can generally provide avenue for higher economic growth.

The second strand of the literature argues otherwise, though with few adherents. It assert that it is not in all situations that competition enhances economic efficiency. The proponents of this strand show both theoretically and empirically that concentration in the banking industry may boost credit to new and small firms which have little or no credit records, hence attracting high lending rates in the economy (Petersen and Ranjan, 1995). They maintain that too much competition among banks may ration-out small holders in terms of credit allocation, thus impeding capital formation and the rate of growth in the economy. Some other recent authors, largely from Asia, have shown that an increase in the degree of market power leads to greater bank stability and enhanced profit efficiency (Rima, 2010; Xu, Shen, Wang, and Shen, 2009). This line of reasoning supports the hypothesis of relative market strength.

In this regard, the last strand of the literature has maintained a middle course on the issue by reasoning that although concentration in the banking industry may provide growth prospects for small and new firms, there appears to be robust empirical evidence of an overall dampening influence on economic growth, considering that few banks wield monopoly and substantial market power with debilitating effects on all the sectors and firms in the economy. Therefore, policymakers should encourage competition among banks if the focus is on enhancing the economic conditions and service delivery (Gamberra, 2001).

In terms of available empirical studies in this area of research, there is a proliferation of studies on the developed markets while scanty literature is available in developing and emerging markets. Some authors have argued that concentration in the banking industry is perceived to be high when there are few banks in the industry, possibly resulting from a merger of existing banks. Also, collusion may occur among a few large players thus dominating the cost of products and forcing smaller players to play along with the dominant market price structure (Bain, 1951; Simpasa, 2013). Theoretically, the Herfindahl-Hirschman Index (HHI) is used to measure concentration of firms in a market (Rhoades, 1995). HHI is the sum of the squared market shares of banks in a market. If the post-merger HHI is less than 1800 points and the index did not increase relative to the pre-merger situation by more than 200 points, then the merger is said to have no anticompetitive undertones. Above these values, anticompetitive tendencies are assumed to exist. Also, larger market shares may be as a result of better efficiency and lower costs and not necessarily by merger only (Berger, 1995). However, Hannan (1997) claimed that the HHI may not be a significant measure to explain deposit rates and that it failed to account for the separate importance of market share difference and the number of firms in the market. Scherer and Ross (1990) submit that to ascertain the relationship between the structure of the banking industry and its performance, it is

important to measure banks market concentration, as it is a good indicator for measuring degree of competition.

Various studies (Ahmed and Khababa, 1999; Ganesan, 2001; Allen and Shaik, 2005) have identified factors affecting the level of a firm's performance, relating to its market structure or efficiency in the use of resources. The standpoint of literature is that oligopolistic profits can either be earned as a result of the concentrated market structure or from efficiency derived as a result of firm resources utilization (Evanoff and Fortier, 1988). Empirically, there are many studies that find a positive relationship between concentration and the degree of market power. They also show that there may be direct relationship between profitability and concentration (Berger and Hannan, 1989; Chirwa, 2003; Bhatti and Hussain, 2010). They argue that deposit rates would be significantly lower in most of the markets that are highly concentrated. Deposit rate rigidity has also been shown as evidence of market power in the U.S. banking sector (Hannan and Berger, 1991; Neumark and Sharpe, 1992).

Despite this discovery, some other studies cast doubt on the relationship between market concentration and market power. They argue that the relationship between market concentration and market power may not be necessarily monotonic and that such a relationship exists at low levels of concentration, but it vanishes with middle levels of concentration and that direction changes in a highly concentrated market (Jackson, 1992). This argument tends to challenge the conventional structure-conduct-performance hypothesis.

Some other literature examines efficiency of banks in terms of its ownership structure, pointing out that a higher ownership concentration is linked to better loan quality, lower asset risk and lower insolvency risk (Giuliano, Giacomo and Andrea, 2007). Considering the analysis of SCP paradigm, Tu and Chen (2006) indicates that both ownership and market structure have significant effect on state-owned commercial banks performance and that the market structure has more effect on performance in case of joint-stock commercial banks.

In Africa, the empirical evidence generally on banking competition and economic efficiency has been sparse largely due to data unavailability at individual firm level. However, in more recent times, more firm level data is now accessible, thus, there is need for more research to assess the efficiency in the industry thereby narrowing the dearth of research in the area. Arguably, only the study by Chen (2009) has been able to provide comprehensive evidence across Africa on banking competition. It concludes that the levels of

competition differ across the continent. In East African Community, Sanya and Gaertner (2012) provide empirical evidence that indicates that the levels of competitiveness of banks are low in all the four countries in the region, while Hauner and Peiris (2008) discover contrary evidence for Uganda. In Ghana, Buchs and Mathisen (2005) contend that financial reforms appear not to adequately promote banking competition.

In Nigeria, few studies have been conducted on the subject matter. Nnaji (2011) considers the impact of banking sector consolidation on competition in the Nigerian banking sector. The study finds imperfect competition among Nigerian banks, and concludes that while consolidation marginally improves competition, more needs to be done to further improve competition in the sector. This implies that there are still some levels of oligopolistic structure in the Nigerian banking sector. In a similar vein, Ajisafe and Akinlo (2014) examine the relationship between competition and efficiency of commercial banks in Nigeria. The study utilises panel data analysis technique with fixed effects. It indicates that there is a positive and significant relationship between the degree of competition and the level of efficiency of banks in Nigeria. The study concludes that the reforms introduced in the banking sector in the late 1980s, raise the degree of competition and improve the level of efficiency of the Nigerian banks. A more recent study was conducted by Saibu (2015) to examine the implication of 2004 bank consolidation on the competiveness of banks in Nigeria. The study uses bank-level panel data and measures competition using the PR-H-statistic and the Lerner index. The study finds that Nigerian banks exhibit features of monopolistic competitive behaviour. Particularly, the H- statistic is positively and statistically significant, while the Lerner index indicates a growing intensity of competition, particular in the period of post-consolidation.

Thus, from the literature reviewed above, it is obvious that there exists mixed empirical evidence in the global analysis of banking competition and economic efficiency. Therefore, there is need to re-examine these interrelationships in Nigeria, particularly after the 2009 global financial crisis.

4.0   METHODOLOGICAL FRAMEWORK

This study adapts a modified Structure-Conduct-Performance (SCP) framework, which postulates that as a small number of firms constitute the larger share of the market/industry, the structure gyrates from perfect to imperfect competition. This development forms the basis of the collusion hypothesis that characterizes oligopoly and other imperfect markets. The SCP model simply connotes that

increasing market concentration leads to less competitiveness in terms of higher prices and less output, resulting in higher profits at the expense of lower consumer welfare. This reflects the performance aspect of the paradigm. The paradigm requires detailed analysis of the total, variable and marginal cost structure of the firm. However, the SCP paradigm has been criticized on grounds that it constrains the user to capture the Structure, Conduct and Performance at the same time, making it difficult to isolate each feature one at a time.

This study, adopts a major empirical method proposed by Panzar and Rosse (1982, 1987) (P-R model), which has been successfully used to remedy the shortcomings of the SCP model by testing the conduct directly without a recourse to industry structure. The method also known as the revenue test, measures the extent to which a change in a vector of input prices is reflected in the gross revenue. Under a perfectly competitive market, it is expected that the change in input prices will fully pass through to revenue.

4.1 The Market Conduct Modeling

The P-R model determines the competitive behavior of banks using the comparative properties of the reduced-form revenue functions based on cross-sectional data. It assumes that a bank maximizes its profits at the point where marginal revenue and marginal costs are equal. Assume a bank's revenue function is defined as:

$$TR_i = TR_i(X_i, Y_{1i}) \tag{1}$$

Where X_i = a vector of output of bank I and Y_{1i} = a vector of exogenous variables which affect the revenue function of bank i.

Similarly, we can equally assume a bank's cost function as

$$TC_i = TC_i\left(X_i,\ P_i,\ Y_{2i}\right) \tag{2}$$

Where P_i = is a vector of k factor input prices of bank i and Y_{2i} = a vector of exogenous variables which affect the cost function of bank i, with Y_{1i} and Y_{2i} including similar variables.

For each bank to maximize profits, it is required that marginal revenue must be equal to marginal costs as stated below:

$$TR_i\left(X_i,\ Y_{1i}\right) - TC_i\left(X_i,\ W_i,\ Y_{2i}\right) = 0 \tag{3}$$

Using the P-R method, the paper measures market power by the degree to which changes in input prices affect the change in the revenue function at equilibrium (Park, 2012).

Panzar and Rosse (1987) and Vesala (1995) estimate the sum of the elasticities of the revenue with respect to factor input prices from the reduced-form revenue equation. They define a measure of competition, the 'H-statistic' as the sum of the elasticities of the reduced form revenue function with respect to factor input prices.

$$\mathbf{H-Statistic} = \sum_{i=1}^{n}(\partial TR_i / \partial w_{ki})(w_{ki} / TR_i) \qquad (4)$$

The estimated H-statistic value ranges between negative infinity and unity $(-\infty < H < 1)$.

If H is less than zero, the underlying market is monopoly, it ranges between zero and unity for monopolistic competition and an H value of unity indicates perfect competition. Panzar-Rosse article also shows that $0 < H < 1$ could be consistent with oligopolistic behavior and also commonly with monopolistic competition.

Following Park (2012), and Vesala (1995), the H-statistic may also be estimated from the reduced-form revenue equation of a bank as specified below:

$$ln(TREV_{it}) = \alpha + \beta_1 \ln(PLAB_{it}) + \beta_2 \ln(PCAP_{it}) + \beta_3(PFUN_{it}) + \sum \gamma_{1h} SVA_h + \sum \gamma_{2k} CVA_k + \varepsilon_{it} \quad \dots \quad (5)$$

Where $TREV_{it}$ is bank i's interest revenue at time t, $PLAB_{it}$ is bank i's factor input price of labour at time t, and $PCAP_{it}$ is bank i's factor input price of capital at time t, $PFUN_{it}$ is bank i's factor input price of funds at time, t, SVA_h is a vector of scale variables (e.g. total assets, number of branches and number of cash centers), and CVA_k is a vector of control variables other than scale variables that affect the bank's revenue function. According to the specification above, the H-statistic is computed by a simple summation of the coefficients β_1, β_2 and β_3.

4.2   A Model of Bank Performance and Market Power

To further deepen the analysis of the competition in the Nigerian banking system, the study uses a regression model to identify the factors that have impacted on the performance of Nigerian banks. Following Park (2012), it uses net interest margin as a measure of performance. In addition, net Return on Assets (ROA), is computed and used as a proxy for a bank's performance. Primarily, this analysis is aimed at determining whether market power and concentration variables (e.g. HHI, CRn, market shares, etc.) have had an impact on the two measures of bank performance namely, net interest margin and ROA of banks. This analysis is premised on the popular theoretical assumption that competitive conditions can be measured by the magnitude of the net interest margin or other measures of banks' profitability.

Therefore equation (6) is the relation of net interest margin (or Return on Assets) to a number of exogenous variables that affect it:

$$PERFVAR_{it} = \alpha + \beta \Sigma BKVAR_{\kappa, it} + \gamma_k \Sigma MKPVAR_{k, it} + \delta_k \Sigma MEVAR_{k, it} + \varepsilon_{it} \quad \ldots\ldots\ldots\ldots \quad (6)$$

Where **PERFVAR***it* = *the average net interest margin (or ROA) of bank i at time t;*

BKVAR*k,it* = *bank specific variables of bank i at time t (such that k includes assets per bank, bank loan, bank deposit and number of branches);*

MKPVAR*k,it* = *market power variables of bank i at time t (such as market share and HHI).*

MEVAR*k,t* = *macroeconomic variables such as inflation rate.*

In the analysis, the paper assumes that concentration indices may be unreliable as a tool for measuring market power. According to Bikker and Haaf (2002), other influences may in practice be far more important determinants. Thus, similar to what was documented in earlier research (Shaffer 1993 and Shaffer and DiSalvo 1994) concentration must not preclude substantially competitive conduct.

4.3   Data and Model Estimation

The study uses monthly data from 20 commercial banks in Nigeria for the period, January 2007 to November 2014. The four banks omitted from the sample are largely insignificant in terms of their deposits and other measures of market share. Also, their data have been largely inconsistent and unbalanced due to mergers and takeover activities over the years. Third, the data for many of the variables is largely unavailable. The data is sourced from the CBN database. For confidentiality, the names of the banks are omitted and substituted with random numbers. Even though some banks shut down and others commenced business during the study period, a panel data from 2007 to 2014 is used. The study also assumes that financial intermediation is the core function of the banks, and revenue of a bank (TREV*it*) is measured by interest revenue. The factor input prices are derived as follows:

PLAB*it* = *personal expenses/number of employees,*

PCAP*it* = *depreciation allowance and other maintenance costs/total fixed assets, and*

PFUN*it* = *interest expenses/sum of total deposits and borrowings*

Net interest margin is derived as the difference between interest income and interest expenses for each bank. Return on Assets (ROA) is a ratio of banks net profit to total assets. Bank-specific characteristics such as total assets, number of

branches and number of cash centers are the scale variables included in the model. In addition, macroeconomic variables such as inflation rate and Treasury Bill Rate (TBR) are used in the model, along with other industry-specific variables such as maximum lending rate (MLR) and prime lending rate (PLR).

The study uses panel econometric technique to determine the presence and structure of oligopoly in the banking industry, after the fashion of Vesala (1995) and Park (2012). Three different panel data methods (pooled OLS, fixed and random effects) are estimated. The Hausman Test is used to test the robustness of the estimated results, and to make a choice between the fixed and random effects methods.

5.0   Results and Discussions

5.1   Descriptive Statistics of Model Variables

Table 5 contains the descriptive statistics for the variables used in the analysis. The mean value of number of staff (NOSTAF) is the highest at 3117, followed by the mean values of number of branches (NUMBRA), and maximum lending rate (MLR), respectively. The standard deviation shows significant variations and diverse variability in the dataset, with the variation highest for number of staff (NOSTAF), followed by number of branches (NUMBRA), and is least for market share of deposit (MAKSHARDEPO). Overall, however, measures of skewness, kurtosis and Jarque-Bera statistic clearly indicate that all series are not normally distributed. The skewness indicates asymmetric distribution as the data series relatively deviates from normality, with both positive and negative skewness. Thus, the kurtosis shows that the series are leptokurtic (high kurtosis) when compared with normal distribution. The P-values associated with the Jarque-Bera statistics, a test for departures from normality, indicate that the dataset's skewness and kurtosis are significantly different from their normal values.

Table 5: Summary Statistics of the Key Variables

	LNINTREV	LNPRILAB	LNPRICAP	LNPRIFUN	NUMBRA	LNTOTOVE	NOCAC	NOSTAF	MAKSHARDEPO	INF	MLR	PLR
Mean	22.2138	13.1950	-5.7184	-5.2488	208.0000	21.1151	20.0000	3117.0000	5.0025	10.3927	22.2952	16.8501
Median	22.3072	13.1633	-5.8035	-5.3230	177.0000	21.0879	10.0000	2520.0000	3.4910	10.5400	22.7600	16.6000
Maximum	25.2986	16.4593	2.9755	1.1858	625.0000	25.2755	95.0000	14954.0000	18.9904	15.6500	26.0700	19.6600
Minimum	14.5225	5.1839	-10.2772	-9.7391	9.0000	13.2199	2.0000	235.0000	0.1007	4.1200	17.1700	14.5800
Std. Dev.	0.9899	0.7201	0.6949	0.8635	142.7300	0.9167	21.9196	2308.1800	0.0406	2.9413	2.5193	1.2043
Skewness	-1.4338	-2.4730	3.3763	1.3690	1.1202	-1.2198	0.8284	1.3365	1.2973	-0.2807	-0.4991	0.6809
Kurtosis	11.5997	29.6375	31.8135	10.7182	3.8874	13.8692	2.2461	4.3096	3.7156	2.2076	2.1122	2.9223
Bera	6498.8950	58048.9200	69262.4400	5303.8990	459.1849	9813.4740	262.0209	700.7031	572.8752	74.5785	141.1440	147.1303
Probability	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Observations	1898	1898	1898	1898	1898	1898	1898	1898	1898	1898	1898	1898

Source: **Authors' Computation from Eviews**

Model Variables: *Interest revenue (INTREV); Price of labour (PRILAB); Price of capital (PRICAP); Price of funds (PRIFUN); Number of branches (NUMBRA); Total overhead (TOTOVE); Number of Cash Centres (NOCAC); Number of Staff (NOSTAF); Market share of deposits (MAKSHARDEPO); Inflation (INF); Maximum lending rate (MLR) and Premium lending rate (PLR).*

Table 6: Correlation Matrix of Key Model Variables

	LNINTREV	LNPRILAB	LNPRICAP	LNPRIFUN	NUMBRA	LNTOTOVE	NOCAC	NOSTAF	MAKSHAR DEPO	INF	MLR	PLR
LNINTREV	1.0000											
LNPRILAB	0.3516	1.0000										
LNPRICAP	-0.0204	0.2685	1.0000									
LNPRIFUN	0.1158	0.0907	0.5766	1.0000								
NUMBRA	0.5312	-0.1149	0.0178	-0.1829	1.0000							
LNTOTOVE	0.8046	0.4580	0.2734	0.0405	0.6685	1.0000						
NOCAC	0.4178	-0.1597	-0.1364	-0.2188	0.5559	0.3944	1.0000					
NOSTAF	0.5502	-0.1913	0.0019	-0.1623	0.8619	0.6434	0.5685	1.0000				
MAKSHAR DEPO	0.6259	-0.0663	-0.2128	-0.2682	0.7378	0.5855	0.6345	0.8008	1.0000			
INF	0.0516	0.0694	-0.0334	-0.0259	0.0411	0.0809	0.0459	0.0260	0.0002	1.0000		
MLR	0.2298	0.2239	-0.2273	-0.2832	0.2217	0.2536	0.1246	0.0763	-0.0004	0.1811	1.0000	
PLR	0.0022	-0.0258	0.0804	0.1356	-0.0010	-0.0054	-0.0208	0.0055	0.0008	0.1879	0.2716	1.0000

Source: Authors' Computation from Eviews

Table 6 is the correlation matrix of the variables used in the models. Correlation coefficients among the variables are generally weak. Most variables in the model have weak positive correlation with interest revenue for all banks except for the price of capital which has negative correlation. Input prices of funds, labour and capital are mostly negatively related to the non-price variables, whereas the non-price variables are generally positively related. In general, the correlation matrix aligns with a-priori expectation, and indicates low correlation between the explanatory variables and the interest revenue, with the exception of the logarithm of total overhead. This may indicate that problems of substitutability, autocorrelation and multi-collinearity are less likely in the model.

5.2 Reduced Form Revenue Equation Analysis

The reduced form revenue equation (5) was estimated, allowing for the computation of the H-Statistic (an indicator of degree of market competition). The H-Statistic is computed as a simple summation of the coefficients of the price variables (the price of labour, the price of capital and the price of funds). Using the reduced form interest revenue function, price variables are indicated as the main explanatory variables, along with other important vector and scalar variables. The model goodness of fit statistic indicates that most variables are significant in all three model runs at 1, 5 and 10% levels of significance. In the

Pooled OLS model, all but maximum lending rate (MLR) variables are significant at 5%, with a robust adjusted R^2 of 82%, indicating that the model variables successfully explain over 82% of the changes in the interest revenue. The robust model performance is repeated across all runs of the panel models, with the fixed and random effect models achieving an R^2 of 86% and 75%, respectively.

TABLE 7: Estimation of Interest Revenue Function, 2007M1 – 2014M11, for the Nigerian Banking System

Variable	Pooled OLS	Fixed Effects	Random
LOG(PRILAB)	0.0892***	-0.2095***	0.1954***
	(3.8029)	(-5.3261)	(5.5491)
LOG(PRICAP)	-0.6038***	-0.3990***	-0.4125***
	(-33.0598)	(-18.5712)	(-19.3937)
LOG(PRIFUN)	0.4244***	0.4227***	0.4268***
	(28.9337)	(27.7568)	(28.6259)
NUMBRA	-0.0011***	-0.0005**	-0.0007***
	(-7.2922)	(-2.2607)	(-3.3726)
MLR	0.0212***	0.0366***	0.0394***
	(4.1379)	(6.2677)	(7.0283)
PLR	0.0020	-0.0316***	-0.0334***
	(0.2492)	(-3.6846)	(-3.9351)
INF	-0.0093**	-0.0073**	-0.0070**
	(-2.7202)	(-2.3721)	(-2.3009)
LNTOTOVE	0.9142***	0.6514***	0.6690***
	(52.4408)	(16.7809)	(18.9775)
NOSTAF	0.0000	0.0001***	0.0000***
	(0.1736)	(4.2993)	(3.8095)
MAKSHARDEPO	5.4830***	6.1884***	6.2521***
	(11.0175)	(7.3660)	(8.3355)
NOCAC	0.0027***	0.0042***	0.0034***
	(4.4032)	(3.5038)	(3.4763)
H-Statistic	-0.0902	0.2332	0.2096
R-squared	0.8175	0.8568	0.7509
Adjusted R-squared	0.8166	0.8545	(0.7494)
F-statistic	_	372.2479	516.7488
Prob(F-statistic)	-	(0.0000)	(0.0000)

- ***t-statistics*** *are shown in parentheses. *, **, *** indicate significance at the 10%, 5% and 1% levels respectively*

Table 7 shows the key model variables (prices of inputs) required in computing the H-Statistic have the appropriate signs in line with expectation for all runs of the model, except for the Fixed Effect model, where price of labour has a negative sign. Apart from prices of inputs, the number of cash centres has a positive sign, indicating that it has a positive impact on interest revenue. On the other hand, the numbers of bank branches, the maximum lending rate and inflation rate have a negative impact on the interest revenue implying that increases in these variables will lead to a reduction in interest revenue. Overall, the price of funds (PRIFUN) is the most significant price variable in the interest revenue function across all runs of the model. This finding has implications for the cost of funds analysis as well as measures aimed at addressing the problems of high lending rates in Nigeria.

Furthermore, the study introduces a structural break by splitting the sample data into two sub-samples made of pre-AMCON years (2007-2010) and post-AMCON years (2011 – 2014). The H-Statistics computed separately for the two periods helps to identify the changes in the degree of market competition and market power in the banking system, before and after AMCON intervention.

The number of bank branches is also significant and similar to the results of the full sample in both pre- and post-AMCON runs. Although the maximum lending rate (MLR) is not significant in the pre-AMCON run, it is significant in the post-AMCON model, similar to the full sample run of the model, implying that MLR contributes to the revenue of banks. The number of staff is mostly significant and has a positive sign in the pre- and post-AMCON runs of the model, indicating that the more staff a bank has the more interest revenue it earns. The market share variable is also significant and has a positive sign, indicating that market share, an indication of concentration, can improve the revenue. Tables 8 and 9 contain the results of the final runs of the pre-AMCON and post-AMCON models, respectively.

TABLE 8: Estimation of Interest Revenue Function for the Pre-AMCON Period, 2007M1 – 2010M12

Variable	Pooled OLS	Fixed Effect	Random
LOG(PRILAB)	0.1252**	0.0488	0.0803
	(3.4390)	(0.8139)	(1.5699)
LOG(PRICAP)	-0.4805***	-0.3588***	-0.3793***
	(-17.0331)	(-12.6709)	(-13.7100)
LOG(PRIFUN)	0.4500***	0.4237***	0.4279***
	(21.6698)	(18.9703)	(20.0747)
NUMBRA	-0.0009*	-0.0013*	-0.0014*
	(-3.4210)	(-2.3098)	(-3.5007)
MLR	0.0274	0.0290	0.0311
	(1.3606)	(1.5475)	(1.6935)
PLR	-0.0361	-0.0400*	-0.0406*
	(-1.8530)	(-2.2638)	(-2.3139)
INF	-0.0017	-0.0014	-0.0006
	(-0.2061)	(-0.1892)	(-0.0871)
LNTOTOVE	0.7789***	0.8621***	0.8294***
	(20.8434)	(14.5586)	(16.2627)
NOSTAF	0.0000	0.0001*	0.0000
	(0.2655)	(2.0118)	(1.6170)
MAKSHARDEPO	6.0966**	4.9602*	5.1600**
	(7.3692)	(3.2746)	(4.7272)
NOCAC	0.0024*	0.0036	0.0033*
	(2.1590)	(1.8506)	(2.0218)
H-Statistics	**0.10**	**0.11**	**0.13**
R-squared	0.8104	0.8527	0.7772
Adjusted R-squared	0.8082	0.8479	0.7746
F-statistic	367.6755	178.8951	299.9845
Prob(F-statistic)	0.0000	0.0000	0.0000

1. *t-statistics are shown in parentheses. *, **, *** indicate significance at the 10%, 5% and 1% levels respectively*

TABLE 9: Estimation of Interest Revenue Function for the Post-AMCON Period, 2011M1 – 2014M11

Variable	Pooled OLS	Fixed Effect	Random
LOG(PRILAB)	-0.1025*	0.1490*	-0.0026
	(-4.0229)	(3.1784)	(-0.0733)
LOG(PRICAP)	0.3889*	0.1133	0.3103*
	(4.6725)	(1.2233)	(3.7742)
LOG(PRIFUN)	0.1641**	0.1025*	0.0964*
	(7.8161)	(4.6736)	(4.7328)
NUMBRA	-0.0002	-0.0004	-0.0007*
	(-1.3162)	(-1.6315)	(-3.1797)
MLR	0.0445**	0.0403*	0.0286*
	(5.3218)	(4.7747)	(3.8466)
PLR	-0.1015*	0.1076**	0.0999*
	(-4.6523)	(5.2003)	(4.8544)
NOSTAF	0.0000*	0.0000*	0.0000*
	(2.7152)	(2.2552)	(0.8333)
LNTOTASS	1.2022***	0.8859**	1.2057***
	(16.5379)	(8.5571)	(15.0046)
LNTOTOVE	-0.2515*	-0.0823	-0.1165
	(-3.3798)	(-1.2397)	(-1.7987)
H-Statistics	**0.45**	**0.37**	**0.40**
R-squared	0.8879	0.9299	0.7204
Adjusted R-squared	0.8870	0.9278	0.7177
F-statistic		431.6835	266.2810
Prob(F-statistic)		0.0000	0.0000

1. *t-statistics values are shown in parentheses. *, **, *** indicate significance at the 10%, 5% and 1% levels respectively*

5.3   The Evidence of Oligopoly

The presence of oligopoly in the Nigerian banking industry is fully tested and confirmed in this study. The measures of market structure such as concentration ratios (CR3, CR4 and CR5), market share and HHI discussed earlier indicate the presence of concentration and imperfect competition. However, H-statistics are

used to specifically confirm the presence of oligopoly, following Bikker and Haaf (2002), Panzar and Rosse (1982, 1987) and Park (2013).

In this study, *H*-statistic is interpreted as a continuous measure of the degree of competition, particularly in the region between 0 and 1, implying that lower values of *H* indicate less competition than higher values. Therefore, the closer the H-Statistic is to one (H→1), the more perfect the industry and the closer it is to zero (H→0), the more imperfect it is. This interpretation draws directly from Bikker and Haaf (2002), and does not strictly follow that of Panzar and Ross (1987), whose main objectives are point interpretation and the test of the hypotheses *H*=0 and *H*=1. It can be shown that under stricter assumption of a constant price elasticity of demand across bank-size markets that the 'continuous' interpretation of *H*-Statistic is correct *(*Bikker and Haaf, 2002). Following from above, H-Statistics that are less than 0.5 and greater than zero would define the region of oligopoly and those from 0.5 and less than unity would define the region of monopolistic competition.

Table 7 contains the H-Statistics computed from the reduced interest revenue function. The H-statistic is -0.09 in the pooled OLS run; changing to 0.23 and 0.21 for the fixed and random effects models, respectively. Base on the Wald test, all the H-Statistics are significantly different from 0 or 1, indicating that monopoly (H<=0) or perfect competition (H=1) is not applicable. A Wald Test result of between 0 and 1, however, indicates oligopoly or monopolistic competition at 1% significance level. The H<0 in the Pooled OLS may suggest there is monopoly in the industry, but 0<H<1 values for both fixed effects and random results indicate that there is a strong evidence of oligopolistic competition, which may also indicate the presence of monopolistic competition (Panzar and Rosse, 1987; Bikker and Haaf, 2002; Park, 2012). Panzar-Rosse's original article also demonstrates that 0<H<1 could be consistent with oligopolistic behavior. It is, however, common in literature to regard 0<H<1 as the region of Chamberlin's monopolistic competition, given the assumption that the observations are in the long-run equilibrium (Nathan and Neave, 1989). Most of the works reviewed for the study adopt this assumption (without testing for it), and interpret 0<H<1 region as monopolistic competition. The study does not consider it wise to impose that assumption, and are able to interpret 0<H<1 region as consistent with both oligopolistic and monopolistic competitive behaviours, depending on the magnitude of H-Statistic in that region.

The computed H-Statistics are, however, closer to 0 rather than 1, suggesting the Nigerian banking industry is strongly oligopolistic rather than monopolistically competitive. The H-values in the Fixed and Random models indicate that 23% and 21% of the changes in input prices would cascade through to the total

interest revenue, indicating a less than 100% pass-through due to distortions. This is a major characteristic of an imperfect market, whereas 100% of the changes in the input prices get transmitted through to the total revenue in a perfectly competitive market, in which there are no distortions.

The above analysis again corroborates he findings of other researchers (Okelue *et al* 2012; Nnaji, 2011), which find the presence of imperfect (specifically, oligopolistic and monopolistic competitive) markets in the Nigerian banking industry. The finding, however, contrasts with that of Nnaji (2011) and Ayeni (2013), which find H-statistics of 0.56 and 0.65, respectively, indicating monopolistic market structure. The works of Buchs and Mathisen (2005) and Claessens and Laeven (2003) confirm that Ghanaian and Kenyan banking sectors also have H-Statistics of 0.56 and 0.58, respectively, indicating monopolistic competition.

Next, the study compares the degrees of competition before and after AMCON intervention. The essence of this section is to compute the H-Statistics for the pre- and post-AMCON runs of the reduced interest revenue model (see Tables 8 and 9). The Wald test also confirms that they are significantly different from 0 and 1, and is therefore indicative of neither monopoly nor perfect competition. However, as in the case of the full sample, the H-Statistics suggest the presence of oligopoly rather than monopolistic competition in the banking sector. The H-values for pre-AMCON runs of the model are 0.10, 0.11 and 0.13 for pooled OLS, fixed and random effects methods of the model, respectively. In the post-AMCON runs of the model, the H-values increased to 0.45, 0.37 and 0.40 respectively for the three runs of the model, indicating that the Nigerian banking industry is less oligopolistic in the post-AMCON period compared with the pre-AMCON period. The development also indicates that AMCON intervention enhances competition in the banking industry.

5.4   Estimation Results of Market Power and Performance

In this section, the study tests the collusion hypothesis which suggests that larger banks with larger market share tend to extort consumer surplus, resulting in higher prices to consumers and socially inefficient allocation of resources (Park, 2013). Using equation (6), the paper regresses two measures of a bank's profitability (an indicator of a bank performance) on a number of explanatory variables in order to determine the impact of selected market power variables on bank's performance (as captured by profitability). Interest Margin (INTMARGIN) and Return-on-Assets (RETURNASSET) are the dependent variables used to represent bank performance. If H-statistic is a necessary condition for the presence of oligopoly, a causal relationship between market power

variables (e.g. CR3, CR5, HHI and market share) and profitability measures (e.g. ROA and net interest margin) has to be the sufficient condition.

In one run of the model, Return-on-Assets (RoA), a measure of bank profitability, is the dependent variable. Specifically, concentration ratios (CR3, CR4 and CR5), market share and HHI variables are regressed, along with other market-level and firm-specific variables, on Return-on-Assets. Although the Fixed Effect run of the model has better goodness of fit result as indicated by a higher R^2 of 45%, the Hausman Test recommended Random Panel Results of the model with a fit at a lower R^2 of 37%. Therefore the final results and analysis are based on the Random Panel results. The market power and structure variables are significant, especially the CR3 and CR5 as well as HHI (DEPOHHI) and market share (MAKSHARDEPO) variables. All variables have positive signs except market share, indicating that market power variables can improve the profitability and performance of the Nigerian banks. The other industry- and firm-specific explanatory variables such as maximum lending rate (MLR), prime lending rate (PLR) and inflation (INF) are also found to be significant in the model.

Thus the relationship between commercial bank performance and concentration and other measures of market power is positive and their coefficients are statistically significant mostly at the 1% level in all specifications (Table 10). This outcome confirms that there is a causal relationship between market share and profitability in the Nigerian banking industry. The significance of the market power variables indicates a strong support for collusion among Nigerian banks due to the positive relationship between bank profitability and market power variables. Therefore, an increase in individual bank's market share, reflecting an increase in the market concentration, is linked to higher ROA in Nigeria.

TABLE 10: Estimation of Return on Asset Function, 2007M1 – 2014M11, for the Nigerian Banking System

Variable	Pooled OLS	Fixed Effect	Random
CR5DEP	0.0177*	0.0195*	0.0194*
	(2.0013)	(2.3614)	(2.3467)
CR3DEP	0.0222*	0.0238*	0.0237*
	(2.5315)	(2.8749)	(2.8630)
DEPOHHI	0.3879**	0.3001*	0.3122*
	(5.2342)	(2.6106)	(2.8878)
MAKSHARDEPO	-0.1220***	-0.1049**	-0.1101**
	(-9.8181)	(-5.5227)	(-6.1928)
LOG(NTPROFIT)	0.0031***	0.0033***	0.0033***
	(27.0548)	(28.7719)	(28.7939)
INF	-0.0002*	-0.0002**	-0.0002**
	(-3.7190)	(-3.9377)	(-3.9530)
MLR	-0.0003**	-0.0003**	-0.0003**
	(-4.0592)	(-3.8877)	(-3.9014)
PLR	0.0002	0.0003*	0.0003*
	(1.6987)	(2.0151)	(1.9829)
R-squared	0.3647	0.4523	0.3865
Adjusted R-squared	0.3615	0.4429	0.3834
F-statistic	114.5766	48.2656	125.7702
Prob. (F-statistic)	0.0000	0.0000	

1. *t-statistics are shown in parentheses. *, **, *** indicate significance at the 10%, 5% and 1% levels respectively*

In another run of the model, some market power variables are also regressed on net interest margin. Net interest margin is popularly accepted as an indication of the degree of competitiveness in the banking industry (Park, 2012). Assets (LNTOTASS), market share (MAKSHARCRED), inflation (INF) and number of staff (NOSTAF) are all positively and significantly related to the net interest margin (Table 11). Prime lending rate (PLR) is not significant in all runs (Pooled OLS, Fixed and Random Effects) of the model. On the other hand, bank networks may have reduced the net interest margin of the banks during the period.

The positive sign and significance of the market share variable (measured by size of credits) has some implications. It means that the higher the market share of a bank, the higher its net interest margin, indicating that market share of a bank contributes to its profitability (measured by net interest margin), implying that concentration is a major determinant of profitability of the Nigerian banks. If a market share variable contributes to net interest margin, it is a sufficient indication that the market has collusive tendency, which is characteristic of oligopoly.

Therefore size and market share of banks in the Nigerian banking sector may be inimical to the degree of competition in line with *a priori* expectation. This study concludes that the bank mergers and takeovers that took place in the last decade have led to a higher degree of market power. This finding is also corroborated by the empirical evidence discussed above that an increase in individual bank's market share has culminated in an increase in overall market concentration, resulting in higher net interest margin in the Nigerian banking industry. Overall this finding confirms the result that the structure of the Nigerian banking industry has a high degree of concentration, resulting in a collusive conduct that is characteristic of oligopolistic market.

Table 11: Estimation of Net Interest Margin Function, 2007M1 – 2014M11, for the Nigerian Banking System

Variable	Pooled OLS	Fixed Effects	Random Effects
C	8.9233***	8.9775***	8.9186***
	(4.9850)	(5.0424)	(5.1193)
MAKSHARCRED	10.6437***	9.0703**	8.5305**
	(4.8643)	(2.2496)	(2.5689)
LNTOTASS	0.3905***	0.3906***	0.3932***
	(6.1778)	(5.9144)	(6.2807)
INF	0.0491***	0.0470***	0.0473***
	(3.2381)	(3.2156)	(3.2480)
NUMBRA	-0.0029***	-0.0039***	-0.0039***
	(-4.0079)	(-3.5502)	(-3.9650)
PLR	0.0199	0.0187	0.0180
	(0.5463)	(0.5400)	(0.5209)
NOSTAF	0.0001	0.0001**	0.0001**
	(1.3253)	(2.2635)	(2.4448)
R-squared	0.1785	0.2867	0.1049
Adjusted R-squared	0.1728	0.2654	0.0987
F-statistic	31.0793	13.4874	16.7613
Prob. (F-statistic)	0.0000	0.0000	0.0000

1. *t-statistics are shown in parentheses. *, **, *** indicate significance at the 10%, 5% and 1% levels respectively.*

6.0   CONCLUSION AND POLICY IMPLICATIONS

The study has examined the evidence and structure of oligopoly in the Nigerian banking industry, using panel data from 2007 to 2014. Preliminary analysis involving the use of market structure measures such as market share, CR3, CR4, CR5 and HHI, indicates that the Nigerian banking industry is concentrated, and controlled by a few banks. Specifically, 25% of the banks hold over 55% of industry-wide deposits. Furthermore, to confirm the presence of oligopoly, panel data modeling, involving different methods (Pooled OLS, Fixed and Random Effects) is used to estimate a reduced form revenue function. Prices of inputs (labour, capital and funds), along with other firm-specific and industry-level variables are regressed on total interest revenues. Most variables are lagged, especially the input prices, allowing the direct estimation of the elasticities of input prices, which are summed to give the H-Statistic, an indicator of the degree and nature of market competition. The H-statistics computed from the prices are -0.09, 0.23 and 0.21 for the three runs of the panel data model, indicating the strong presence of oligopoly in the Nigerian banking industry, as the H-Statistics are close to zero, with Pooled OLS run showing a weak evidence of monopoly.

In order to test the impact of market power variables on bank performance as a sufficient condition for the presence of oligopoly, market power variables such as CR3, CR4, CR5, market share and HHI are regressed against return on assets and net interest margin, two measures of bank performance. The study finds that most market power variables are positive and significant, indicating that the higher the market concentration, the higher the performance of banks. This is a sufficient condition for the existence of market imperfection and oligopoly is confirmed by the H-Statistics.

Policy Implications

i.   While the authors note that the Nigerian banking model is stratified into international, regional and national banks, with varying capital base requirements, an alternative model would be one with a uniform capital base which will entail a new wave of regulated mergers that will ensure that emerging banks are of a similar size and structure.

ii.   Price of funds is found to be very significant in the model with implications for cost of funds in the banking industry. Currently, adjustments in the monetary policy rate (MPR) are not effectively transmitted to market interest rates due to high bank operational costs and structural issues, leading to a wide margin between the MPR and bank lending rates. Strategies aimed at reducing market interest rates in the economy should be explored by policy makers.

iii.   Smaller banks tend to create more credit from their deposits while the bigger banks grant less credit, relative to their deposits. A regulation should be in place to ensure that banks give a specified percentage of their deposits to specified sectors of the economy. This should help reduce the incidence of foreign exchange speculation, and control excess liquidity in the banking system.

A formal penalty system should be developed to penalize banks that individually or in collusion, breach monopoly regulations. On the other hand, moral suasion should be adopted as a means of persuading banks to allow a level playing field.

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TAX STRUCTURE, GOVERNMENT SPENDING AND PRODUCTIVITY GROWTH IN NIGERIA

By N.L. Arodoye[1] and A. C. Adegboye[2]

Abstract

In view of its delicate nature as a government policy, tax administration has been considered from a number of perspectives, especially when it is related to economic performance and growth over time. In this study, tax structure in Nigeria and how it relates to productivity growth and overall economic performance is investigated. The changing structure of the Nigerian economy is considered in terms of the tax structure evolution. Three issues are considered, namely, responses of government spending to tax changes, tax-spending effects of growth of output per man, and the structural effects of taxes on growth over time. Using appropriate techniques and data for the period 1981 to 2013, the results indicate that company income taxes performs best in explaining changes in government spending while VAT performed worst. Also, spending patterns that are economic and productive tend to provide optimality for taxation in terms of productivity growth. In relation to tax structure, indirect taxes appear to be more output stimulating than direct taxes, therefore, growing the economy in terms of productivity and employment generation requires more appropriate tilting of the tax structure towards indirect taxation as well as channeling tax revenues to more productive uses.

Keywords: taxation structure, fiscal spending, productivity, Nigeria

JEL Code: H21, H5, O4 O11

I.   INTRODUCTION

Taxation is one of the delicate areas of government policy. Not only are taxes necessary to fund government expenditure, they can also be an effective lever to achieve a fairer distribution of income and more inclusive growth. At the same time, taxes may distort economic behaviour and inhibit economic growth. This is why policy makers are interested in raising revenue in ways that will minimize disruption to economic activity. Economists have long understood that the larger the behavioral response to a tax change, the larger the resulting efficiency cost or deadweight loss. Although the deadweight loss may not be of utmost relevance to policy makers or voters per se, they are usually keenly interested in the impact of taxes on productivity growth and employment. In this direction, OECD (2010) notes that growth-oriented tax systems are designed not only 'to minimize the distortions of market signals by the tax system, but also to create as few obstacles as possible to investment,

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innovation, entrepreneurship and other drivers of economic growth.' Spry (2014) also explains that 'a tax system with low tax rates and a broad tax base minimizes economic distortions' noting that with such minimal distortions, economic decisions allocate resources to their most productive use. This means that tax structures should best be designed to specifically encourage savings, investments, innovations, entrepreneurship and generally support GDP per capita growth. Also, Stiglitz (2014) warns that such tax reforms geared towards promoting equity and growth should be carefully undertaken if they are not to have large distributional consequences and impose large transition costs.

As IMF (2014) notes, tax reforms have strong roles to play in the advancement of economic efficiency in many developing countries. This is perhaps due to the fact that most developed economies have a considerably longer history of adopting fiscal policy measures to wrestle inequality and promote inclusive growth than those in developing countries such as Asia (Heshmati, Kim and Park, 2014). Apparently, the failure or success of any fiscal policy can be assessed by defining the existing deficits in relation to GDP, and in terms of the inequality in wealth and incomes; regional disparities; and labor market conditions.

Also, the European Union (2011) notes that '…a growth-friendly tax structure could go hand in hand with social equity, if tax reforms are adequately designed' noting that the reduction in tax expenditure and blocking other loopholes in corporate taxation would bring about higher tax revenues that could (partly) be used for growth-enhancing rate reductions. Arnold (2008) explains that changes in tax structures can have a bearing on the intertemporal levels of gross domestic product, with growth effects appearing over a transitional period towards a new equilibrium. In an earlier study, Scully (1991) explains that countries that try 'to increase government revenue at the expense of economic growth expose their citizens to a form of double taxation, people pay once through direct taxes and again through lower standard of living caused by lower economic growth'. This illustrates the fact that government should, as a matter of policy, redirect tax revenue to ensuring growth for its citizenry.

In this context, the structural composition of the economy represents a potential concern for policy makers. In their view of structural composition, Thompson and Rohlins (2012) note that large revenue losses may be evolving in some sectors while other sectors may be delivering inefficient growth outcomes even with fairly high tax burdens. This indicates that proper oversight of the tax base as well as distributive outcomes of the tax structure are important issues to consider in the deployment of appropriate fiscal outcomes as instrument for inclusive growth. Thus, an important element in the taxation system is also how it is collected from different sectors of the economy. For instance, a Global

Competitiveness Report (2013) suggests that in Nigeria, a greater number of taxes are collected from industry then in agriculture which records the least number of taxes

Given the changing structure of the economy which has led to changes in tax structure, good tax policy and administration is necessary for Nigeria not only to sustain its economic growth, make it more inclusive but also ensure that the burden of taxation is fairly distributed.

Figure 1: Trend of total tax revenue as a percentage of GDP in Nigeria
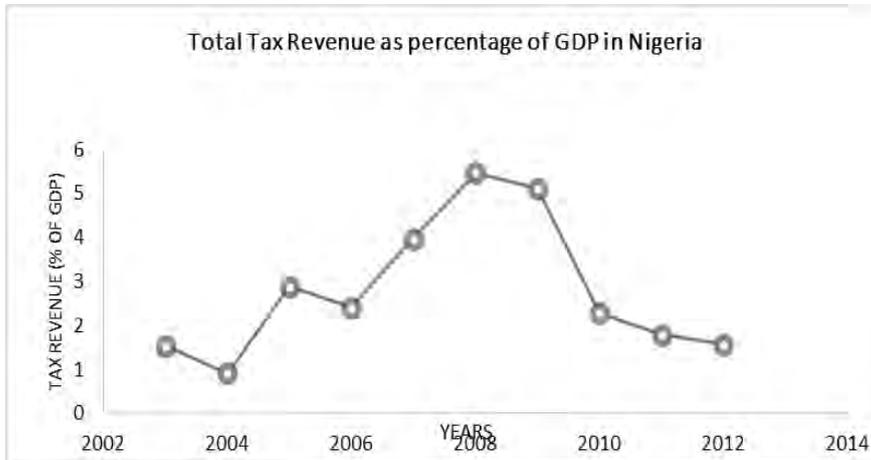
*Source: Authors' computation. *data: World Development Indicators.*

Figure 1 shows the trend in the value of Nigeria's total tax revenue as a percentage of GDP in the period, 2003 to 2012. It is clear that Nigeria's tax revenue accounted for a significant portion of her GDP between 2007 to 2009. This may have resulted from the development of harmonized tax reform agenda such as the Value Added Tax (amendment) providing a better clarity in the administration of value added tax by removing ambiguous provisions in related tax laws. More surprisingly, between 2009 and 2012, the declining contribution of tax revenue in the country's GDP was noticed, reflecting the narrowness of tax base of the country as well as the attendant reliance of the government on 'juicy returns' from primary commodities until recently when the oil prices collapsed in the international oil markets.

More recently, in its series of annual economic reports, the Central Bank of Nigeria reveals that the total federally-collected revenue fell by 8.4 per cent to N9,759.8 billion or 12.0 percent of GDP in 2013. Interestingly, the gross revenue from non-oil sources increased by 12.2 percent, representing 30.2 per cent of the total or 3.6 percent of GDP. This performance of the non – oil sector reflected yield from Value Added Tax (VAT) and Corporate Income Tax (CIT)

which rose by 12.0 and 16.1 percent respectively. The revenue from customs/excise duties fell by 8.7 percent. The significant improvement in the non-oil revenue reflected the improved economic activities in the economy as well as enhanced revenue collection by the revenue-collecting agencies. This significant progression in Nigeria's recent tax revenue profile was also noticed in the country's financial transaction taxation in relation to total tax revenue as compared to some selected ECOWAS countries. It is clear that Nigeria is taking the lead compared to most ECOWAS countries in terms of taxes on income, profits and capital gains as percentages of total taxes and revenue (see Table 1).

Table1: *Taxes and capital gains in selected ECOWAS Countries*

Countries	*Taxes on income, profits and capital gains (% of revenue)*			*Taxes on income, profits and capital gains (% of total taxes)*		
	2010	*2011*	*2012*	*2010*	*2011*	*2012*
Benin	16	17	17	19.6	20.9	19.7
Burkin - faso	15	19	20	23.6	28.9	28.7
Cote D' Ivore	20	23	21	24.0	26.5	25.3
Mali	22	22	29	30.0	28.7	31.9
Nigeria	**38***	**30***	**28***	**93.6***	**91.9***	**90.9***
Senegal	23	22	23	27.3	25.7	27.7
Sierra - leone	20	22	31	32.0	34.0	43.4
Togo	11	10	10	14.6	14.2	12.7

Source: **World Development Indicators**, *2014. * country of emphasis*

This study, investigates the effects of tax structure on growth in productivity in Nigeria. In particular, it considers the effects of taxation on fiscal activities as well as the tax-spending effects on productivity growth in Nigeria. In this direction, it investigates how the structure of taxes explains government fiscal activities and estimates the Barro model for Nigeria. Based on these goals, the study is divided into five sections, including the introductory section. In section two, pertinent literature is reviewed while the methodology and theoretical procedures are presented in section three. In section four, the study highlights **the empirical results** while section five contains the conclusion.

II. LITERATURE REVIEW.

One aspect of taxation that has received significant evaluation in view of its practical relevance is the structure of the tax system. Apparently, a tax system can either mirror economic structures or even provide wide background for

conducting necessary adjustments to the patterns of growth in an economy (Montiel & Agenor, 2008, Smart & Bird, 2009; and Zodrow, 2010). To begin with, Anyanwu (1997) has noted that tax structure in general addresses the questions of how taxes are and should be composed, explaining that such questions border around the availability of economic factors of feasible tax bases as well as other non – economic factors causing changes in tax structure. In relation to the structure of taxes and the tax base, Harvey & Gayer (2010) area that tax deductions and tax exemptions influence the size of tax base. By extension therefore, policy makers in their quest to design and reform the tax systems, ensure that every change made in terms of tax base and tax rate(s) will affect the distribution of the tax burden between taxpayers.

The effects of taxation on overall growth (especially in disaggregated forms) can provide the basis to evaluate tax effects on inclusive growth. On a theoretical level, Engen & Skinner (1996) provide a disaggregated theoretical basis on the effect of taxes on economic growth. They note that higher taxes can discourage the investment rate through high statutory tax rates on corporate and individual income; attenuate labor supply growth by discouraging labor force participation or hours of work; discourage productivity growth by attenuating research and development (R&D); and influence the marginal productivity of capital by distorting investment from heavily taxed sectors into more lightly taxed sectors with lower overall productivity. The allocative efficiency of resources may also be affected by imposition of taxes (Koch, Schoeman & van Tonder, 2003).

 In general, studies of taxation using cross-country data suggest that higher taxes have a negative impact on output growth, although these results are not always robust to the tax measure used. Using reduced-form cross-section regressions, Koester & Kormendi (1989) estimate that the marginal tax rate—conditional on fixed average tax rates—has an independent, negative effect on output growth rates.

Arnold (2008) examines the relationship between tax structures and economic growth by entering adopting panel growth regressions for 21 OECD countries. The results of his analysis reveal that income taxes are mainly related to lower economic growth than taxes on consumption and property. More specifically his findings allow the formation of a ranking of tax instruments with respect to their association to economic growth. However, an evidence of a negative relationship between the progressivity of personal income taxes and growth was established. In a separate analysis of the effects of effects of income tax changes on economic growth, Gale & Samwick (2014) convincingly explained that the structure and financing of a tax change are fundamental to achieving economic growth, and also that 'base-broadening measures can eliminate the

effect of tax rate cuts on budget deficits, but at the same time they also reduce the impact on labor supply, saving, and investment and thus reduce the direct impact on growth'. More technically they explain that not all tax changes will have the equal influence on growth, and that reforms that enhance incentives, reduce existing subsidies, eschew windfall gains, and avoid deficit financing will have more promising effects on the long-term size of the economy, but may also bring about trade-offs between equity and efficiency.

Angelopoulos, Malley & Philippopoulos (2012) study the quantitative implications of changes in the composition of taxes for long-run growth and welfare in the UK economy, and they reveal from their findings that the goal of tax policy is to promote long-run growth by altering relative tax rates in a budget neutral manner by reducing labour taxes and increasing capital and/or consumption taxes. On the contrary, they note that if the goal of the tax policy is to promote welfare, substantial gains can be obtained from tax reforms that decrease the capital tax rate relative to the labour and consumption tax rates or that reduce labour relative to consumption taxes. Generally, their findings give the highpoint of the significance of the choice of tax structure in policy design and specifically analyzing the mediums through which the changes in the tax structure mainly affect growth and welfare.

Moreover, Yamarik (1999) in an earlier investigation of the growth implications of a nonlinear tax structure with special attention on the distortionary not the redistributive effects of taxation, reveal that the tax structure or what is referred to as tax progressivity through time may be another source of differences between observed per capita growth rates. More broadly, Widmalm (2001) utilizes pooled cross-sectional data from 23 OECD countries to analyze the effect of tax structure on economic growth and finds evidence supporting the effect of tax structure on economic growth with the proportion of tax revenue raised by taxing personal income having a negative correlation with economic growth.

Bruce, Fox & Tuttle (2006) analyze the relative dynamic responses of state personal tax revenues and sales tax bases to changes in state personal income, and their results indicate that the average long-run elasticity for income taxes is more than double that for sales taxes. Moreover, most states have asymmetric short-run income elasticities, which are again greater for income taxes than for sales taxes and also the overall examinations of long- and short-run dynamics reveal that neither tax is universally more volatile. Also in the course of providing a critical analysis of the current consensus on tax reform in developing countries in terms of both efficiency and equity, Emran and Stiglitz(2007) explain that the imposition of VAT may retard the development of markets, especially in the rural areas and that the tax reform policies implemented in a large number of

developing countries that reduce the tariff and shifts the burden of raising revenue to VAT are also likely to be undesirable in terms of equity and they show that the current emphasis on uniform VAT is especially regressive.

In the case of developing countries, less analysis has taken place even though a consensus appears to be emerging regarding the impact of tax policy on economic growth and productivity in the developing world. However, the research that has been undertaken suggests that the impact of taxation in developing economies is larger than it is in developed economies. Skinner (1988) uses data from African countries to conclude that income, corporate, and import taxation led to greater reductions in output growth than average export and sales taxation. Marsden (1990) groups 20 developing countries into high tax and low tax regimes and finds that the low tax group averages 7.3 per cent growth, but the high tax group only 1.1 per cent. Wang and Yip (1992) show that the structure of taxation is more important than the level of taxation in explaining economic growth in Taiwan from 1954 to 1986. Their empirical estimates show significant and negative impacts of specific taxes on economic growth, but the effect of total taxation is not significant. On the other hand, Tanzi and Shome (1992) uncover no obvious uniformities between the tax policies of eight Asian economies concluding that "...tax structure may become largely irrelevant when macroeconomic problems become predominant, and the distortions created by the tax system become of a second order magnitude..."

Apparently, the impact of taxation in the developed world is likely to be different from the impact in the developing world, especially in Africa, and, therefore, taxation in Africa, which has received little attention, merits further study (Easterly and Rebelo, 1993). Importantly, developing countries do not have the infrastructure to adequately police tax compliance; thus, shifts in tax policies in developing countries, especially increases in income taxes, are likely to push economic activity underground (Koch, Schoeman and van Tonder, 2003). Indeed, by pointing out the fact that the specific fiscal policy tools, namely tax composition and the size of the government spending can alter economic growth, de Wet *et al.* (2005), report that for the South African Economy, the economic growth is negatively affected by the increases in the public expenditures and direct tax revenue in the period 1969-2003.

Empirical and theoretical literature therefore indicates that taxation and its rates tend to have both aggregated and disaggregated effects on growth. Taxes are shown to discourage labour productivity and tend to retard growth, especially in the short term. The studies, however, do not generally link taxation with government spending as they affect growth. Moreover, the structural implications of taxes given changing economic structures have had little attention. For instance, Ferede and Dahlby (2012) predict the effects of a switch

from short term-oriented taxes to broader taxation patterns in Canada and find that the structural adjustment will deliver growth-enhancing effects. Such studies, though very relevant for a system such as that of Nigeria where economic structures are rapidly evolving, has had little reflections. Three issues are of relevance in this direction, namely, relating government spending changes with taxation, showing the long run tax-spending effects on growth and the direct and indirect effects of tax composition on growth. The current study pursues this empirical analysis.

III.   METHODOLOGY AND MODEL

The study uses a Barro (1990) model that illustrates dual effects of taxation on growth in an economy. This approach provides a well-defined pattern in estimating the productivity growth enhancing nature of the tax structure in Nigeria. The key idea of the model is that the flow of government spending, G, (resulting from tax revenue) has a positive effect on private production which can then be extended to productivity growth. Based on the model, the production function for each individual firm can be specified as

$$Y = AG^{a}K^{1-a}, \quad 0 < a < 1, \tag{1}$$

Where K is the capital stock. The specification implies that for each firm h, the production function exhibits constant returns to G and K_h.

Suppose that government runs a budget deficit financed by a proportional tax on output, T, government budget constraint would be

$$G = \tau Y \tag{2}$$

Where τ is the tax rate. Given private consumption and capital stock and noting that G rises along with the aggregate private capital stock, the Barro model produces endogenous steady state growth of the form:

$$g = \sigma[aA^{1/(1-a)}\tau^{a/(1-a)}(1-\tau) - \rho], \tag{3}$$

where ρ is subjective time consumer preferences.
Equation (3) above indicates that the productivity growth rate will be determined by

   i.   The term $1-\tau$, which represents the negative effects of taxation on after tax marginal product of capital; and

   ii.   The term $\tau^{a/(1-a)}$, which represents the positive effects of the provision of public services on the after tax marginal product of capital.

The model further notes that growth rate rises when the tax burden is less than an optimum level. Beyond this level, taxation and government expenditure become inefficient. Thus, the Barro rule requires setting the tax rate (or tax burden) equal to the elasticity of output with respect to the flow supply of public infrastructure and services in order to maximize growth either in productivity or employment (Agenor and Montiel, 2008). This study argues that it is this kind of relationship that will ensure long run productivity growth that may deliver

continuous improvement in employment opportunities. The Barro model therefore provides background for testing government spending/taxation effects on output using various spending scenarios. This relationship is tested under four settings: when expenditure is on social services or productive services, and when expenditure is recurrent or capital in nature. Then we test a mixture of tax-led expenditure patterns on growth is tested.

Deriving from equations (2) and (3), the Barro model is simplified to an output growth function where government spending, physical capital and human capital are the economy-wide inputs. The study shows that the growth-maximizing relationship between government spending and taxes is demonstrated by observing the coefficients of government spending and taxation in the per capita output growth model as follows

$$y_t = a_0 + a_1 G_t + a_2 K_t + a_3 H_t + u_t \qquad (4)$$

where y is the growth in per capita output, and H is human capital input in production. The function indicates that the Solow residual captures the influences of all types of government spending on output per man growth rate. Indeed, taxes can affect growth because they can affect overall productivity or the way labor, capital, and other resources are used in the production process (Reed, 2008; Mankiw, Romer and Weil, 1992). Since the optimality of spending/tax relationship with output growth indicates that the government spending elasticity output is set equal to the tax rate, then equation (4) is re-specified but G is replaced with taxes (T) and the coefficient of the T variable is considered the marginal tax rate:

$$y_t = \beta_0 + \beta_1 tax_t + \beta_2 K_t + \beta_3 H_t + \varepsilon_t \qquad (4')$$

The optimality of the tax and spending relationship can then be observed by testing the equality of the coefficients a_1 and β_1 using appropriate methods such as the Wald test of coefficient restriction. Moreover, in order to ensure smooth operationalization of the tests, equations (4) and (4') are estimated in a simultaneous equations framework. It should also be noted that both output and government spending/taxes are endogenous in a long run relationship (see Barro, 1997; and Lucas, 1990). This implies that estimating the equations would require the use of methodology that would ensure simultaneity bias is eliminated. The study therefore adopts the system GMM estimation method for the analysis of the relationships.

The initial analysis in this study involves tracing the responses of government fiscal activities to changes in tax revenue in Nigeria in order to observe how each tax component explains fiscal activities in the country. The study uses forecast variance decomposition from the following VAR specification in which fiscal balance and four tax components are the endogenous variables:

$$fbal_t = \alpha_0 + \sum_{i=1}^{k} \beta_i fbal_{t-k} + \sum_{i=1}^{k} \delta_i tax_{t-k} \qquad (5)$$

where *fbal* is the ratio of fiscal deficit to GDP and *tax* is the component of tax revenue (the paper uses VAT, company income tax – CIT, petroleum profit tax – PPT, and customs and excise duties – CED); k is the length of the lag used in the VAR estimation, selected based on the Schwarz information criterion (SIC). The model can provide a background for tracing the pattern of responses of fiscal deficits to changes (or shocks) to various tax components in Nigeria. This will show the effects of tax structure on fiscal activities in the country in terms of the case for direct and indirect taxes.

As explained in Lee and Gordon (2005), tax rates may be endogenous. A growing economy can afford to reduce tax rates, while governments may be forced to raise taxes when their economies decline and their tax bases contract. If tax rates are endogenous, the point estimates of the coefficients of the tax rates from OLS estimation may be biased. To overcome this potential endogeneity problem, the study treats the tax rates as endogenous. As is common in the growth literature, government spending and investment ratios are regarded as endogenous. It is quite challenging to determine which instruments to use for the tax rates and other endogenous variables. A valid instrument should be correlated with the tax rate but not with the growth rate (Breene, 2002). Thus, as in Lee and Gordon (2005), the contemporaneous and one-period lagged values are used as instruments for the variables.

Finally, the nature of the analysis in the study requires that the time series properties of the variables be tested. The unit root tests (not reported) show that apart from the total government spending variable, all the variables used in the study are stationary at first difference (i.e. they all possess unit roots). Moreover, the Johansen cointegration test (shown in the appendix) reveals that the combination of variables for the productivity equations has at least 3 cointegrating vectors while the combination for the fiscal balance and taxation components has at least one cointegrationg vector. This thus shows that a long run relationship exists among the variables used in the analysis.

IV.   EMPIRICAL ANALYSIS

The empirical analysis involves the presentation of the various sections of the analysis that are described in the previous section. Thus, two sets of analysis are conducted: the first determine the nature and pattern of responses of fiscal spending (or deficits) to the structure of tax revenue in Nigeria, the second tests the conclusions of the Barro-type growth model where government activities are included either through spending or through taxation. The estimated model

shows the effects of tax structure, as well as the interplay between taxation and government spending in relation to, growth in productivity.

To begin this analysis, the study reports the Granger Causality test result for the main variables. The goal is to evaluate the cause-effect relationships between the components of tax revenue and government fiscal spending on the one hand, and also to understand the causal relationship existing among taxes, spending and productivity growth. The result of the Granger causality test is shown in Table 2, with the F-statistic values of the tested null hypotheses of no Granger causality. For the tax structure and fiscal spending relationship, the results show that only the CED PPT effects on FBAL and are significant from the F values. This implies that movements in customs duties or petroleum profit taxes tend to significantly stimulate fiscal spending in Nigeria. This result does not give too much inferences with regard to the relative effectiveness of either direct or indirect taxation in promoting spending, since CED is an indirect tax while PPT is direct tax. However, the results reveal the heavy dependence of fiscal spending on outcomes of international trade and the oil sector. As Baunsgaard & Keen (2005) and Chu, Davoodi & Gupta (2000) note, this pattern of relationship does not appear to be a sustainable trend over time since neither foreign trade nor oil revenue can be considered stable tax bases, especially in developing economies.

Table 4.2: Granger Causality Test Results

Null Hypothesis:	F-Statistic	Prob.
CED does not Granger Cause FBAL	3.02	0.05
FBAL does not Granger Cause CED	0.10	0.90
PPT does not Granger Cause FBAL	3.16	0.05
FBAL does not Granger Cause PPT	0.10	0.90
VAT does not Granger Cause FBAL	0.80	0.47
FBAL does not Granger Cause VAT	0.20	0.82
CIT does not Granger Cause FBAL	1.54	0.23
FBAL does not Granger Cause CIT	1.52	0.24
TAX does not Granger Cause G	7.30	0.00
G does not Granger Cause TAX	18.35	0.00
Y does not Granger Cause G	1.47	0.25
G does not Granger Cause Y	4.35	0.02
FBAL does not Granger Cause TAX	0.76	0.48
TAX does not Granger Cause FBAL	2.20	0.13
Y does not Granger Cause TAX	5.11	0.01
TAX does not Granger Cause Y	3.09	0.05
Y does not Granger Cause FDR	4.49	0.03
FDR does not Granger Cause Y	1.16	0.21

For the tax, spending and productivity relationships, there is reverse causality between tax revenue and government spending, as expected. Apparently, higher tax revenues will engender higher spending by the government. Government spending Granger causes productivity but not the other way around. Surprisingly, no causal relationship appears to exist between taxes and fiscal balance, suggesting that movements in either of the variables do not bring about changes in their respective values over time. The result also shows that a simultaneous relationship exists between taxes and productivity in the country. This implies that productivity in the country responds to changes in taxation while taxes itself is determined by the level of productivity in the country. Finally, there is a unidirectional relationship between fiscal balance and productivity with the balance responding to changes in productivity although the reverse is not the case.

4.1   Tax Changes and Spending Responses

The effects of tax changes on spending is presented using results from the estimated VAR equation (5). The forecast error variance decomposition (FEVD) of the VAR estimates is used to show how much each of the tax components explains government spending patterns in Nigeria. The FEVD for the model is presented in Table 3. The results show the forecasts proportions of the variances of fiscal balance that are explained by variances in various tax structures in Nigeria. In the first column, the explanation of the variances in *fbal* by total tax revenue is presented. It is observed that revenue explains an increasing proportion of fiscal balance over time, with the proportion explained reaching a maximum of 37.4 percent in the tenth year. Moreover, the tax begins to explain a relatively substantial proportion of fiscal balance after the fourth year, suggesting that tax-led revenue streams take long to track fiscal balance in Nigeria. For the other tax components, the results show that VAT performs worse in explaining variances in fiscal balance for the period; it only explains a maximum of 5.36 percentage points of the variations in *fbal* in the tenth year. A major explanation for this result is that VAT pool account is distributed among the states of the federation and the federal government. Hence, revenue from that tax component may not relate quite effectively with federal government spending patterns.

Moreover, PPT and CED perform quite well in the forecast decomposition. In particular, PPT is seen to explain more substantial proportions of *fbal*, indicating that government spending patterns relate more to petroleum taxes than any other tax component in Nigeria. Apparently, PPT being attributable to the oil sector performance appears to track the patterns of government spending which has been noted to be quite procyclical over time (see Obadan and

Adegboye, 2013). A general point to note from the results is that it takes over four periods for all the tax components to begin to explain substantial proportions of the fiscal balance. Also, both PPT and CED have larger explanatory effects early enough when compared with other tax components. Moreover, as in the Granger causality test results, there is no clear-cut pattern of structural division in terms of spending responses. Also, the pattern of spending dependence on tax revenue may not provide the strongest support for fiscal operations in Nigeria since the main tax components that explain spending decisions are derived from an unstable resource or from a volatile external sector.

Table 3: Forecast performance of taxes in explaining government fiscal balance

Year	Total tax	VAT	cit	ppt	ced
1	0	0	0	0	0
2	0.84	0.75	3.20	0.14	1.01
3	3.27	1.48	4.58	4.74	9.02
4	7.24	1.86	5.25	11.79	14.01
5	11.63	2.17	5.91	17.97	17.45
6	16.42	2.56	6.77	23.14	19.55
7	21.50	3.07	7.92	27.67	21.03
8	26.80	3.69	9.43	31.74	22.05
9	32.24	4.45	11.38	35.45	22.79
10	37.74	5.36	13.88	38.82	23.31

4.2   Explaining the Barro-type Tax-Spending-Growth Relationship for Nigeria

The results of the estimated model for the outcome of the relative effects of tax and spending on growth in the long run is presented in Table 4. As noted earlier, the results are estimated using the system-GMM methodology since both output per man and spending/tax variables are taken as endogenous. The results provide several interesting patterns. First, it shows that taxes tend to have unambiguous negative impact on productivity irrespective of the nature of expenditure. In the first group, the result shows that a percentage reduction in taxes tends to reduce productivity by about 0.17 percent. This result is robust for all spending patterns apart from the recurrent spending pattern which fails the significance test. Apparently, the results show that tax changes may not actually affect recurrent expenditure as will be expected since recurrent expenditure may not change drastically even when revenue streams change.

For government spending, the results of the coefficients are positive for aggregate, capital, and productive services spending, and it is for these spending patterns that the coefficients are also positive. The government spending coefficients for recurrent and social services spending are negative and both fail the significance test. Thus, government spending elasticity of productivity is significant for capital and productive services spending patterns. Any 1 percent increase in capital spending causes productivity to rise by 0.08 percent, and a 1 percent increase in productive (or economic) spending leads to 0.05 percent rise in productivity. For aggregate spending, the elasticity of 0.18 is higher than those of the disaggregated spending patterns. These results indicate that taxes tend to reduce productivity while government spending tends to increase productivity rate.

The coefficients of physical and human capital are significant and positive throughout the regression results. This indicates that both infrastructural and human capital investment provide strong output enhancement outcomes in Nigeria. The coefficients of human capital are consistently higher than that of physical capital in each of the equations and thus, indicate that the contribution of human capital to growth seems to be higher than that of physical capital in Nigeria. The coefficient of determination for each of the models is high and show that the fiscal operations-augmented growth model explains very large proportions of the variation in growth in output per man in Nigeria. The coefficient of over-identification in each equation fails the significance test, suggesting that over-identification restrictions are appropriate in the models.

Table 4: Taxation, Government Spending and Growth of Output per Man

Spending factor	_Aggregate_		_Recurrent_		_Capital_		_social services_		_productive services_	
	Spend	_Tax_	_Spend_	_Tax_	_spend_	_Tax_	_Spend_	_Tax_	_Spend_	_Tax_
Constant	-7.53 (-1.04)	-7.72 (-1.11)	-6.01 (-1.14)	-2.45 (-1.30)	-2.00 (-1.51)	-6.99 (-1.15)	-4.74 (-1.23)	-6.82 (-1.3)	-0.85 (-1.32)	-6.89 (-1.63)
_Lg_	0.18* (2.54)	---	-0.13 (1.03)	---	0.08* (2.18)	---	-0.12 (-1.67)	---	0.05* (2.89)	---
Ltax	---	-0.17* (-2.39)	---	-0.07 (-1.69)	---	-0.16* (-2.39)	---	-0.15* (-2.33)	---	-0.15* (-2.77)
_Lk_	0.09** (6.09)	0.08** (7.01)	0.10** (4.71)	0.10** (6.19)	0.10** (5.17)	0.07** (4.28)	0.11** (7.00)	0.08** (-5.38)	0.10** (4.73)	0.08** (4.29)
_Lh_	1.62* (2.35)	1.64** (5.66)	1.41* (2.22)	1.03* (2.09)	0.96** (18.3)	1.56** (9.11)	1.23** (6.18)	1.52** (4.49)	0.81** (6.21)	1.54** (6.10)
R^2	0.9	0.86	0.89	0.9	0.93	0.87	0.85	0.87	0.93	0.87
Over-identification test	0.103		0.21		0.22		0.02		0.15	

Note: * and ** indicate significance at 5 and 1 percent respectively; t-values are in parentheses below each coefficient

The Restricted Results

From the simultaneous equations strategy demonstrated in the GMM estimates, restrictions are imposed on the coefficients of the exogenous variables in both equations in order to observe whether a significant difference exists between government spending-productivity elasticity and taxation in terms of their impacts on the endogenous variables. The restrictions are imposed by placing the same coefficients in the two equations in the study for the variables _g_ and _tax_. In order to implement this strategy, the study initially conducts the Wald test of coefficient restrictions with the hypothesis that there is no significant difference in the (negative) impact of the taxation and the (positive) impact of government spending on productivity growth. The result of the Wald test (or Chi – square statistics) is presented in Table 5.

The results in Table 5 show that the coefficients of restriction on the tests using aggregate, capital, and productivity spending fail the significance test at the 5 percent level. This indicates that the null hypothesis of no significant difference in

the impact of taxes and each of the spending patterns on output growth cannot be rejected. There appears to be some form of output optimality in the application of tax-led spending, especially for capital and productive spending. For the recurrent and social services coefficients, the Chi-Square values are significant at the 5 percent level and shows that a significance difference exists between impact of taxes and both social and recurrent spending in Nigeria. These results may actually agree with theoretical forms: social spending in particular focuses more on welfare and political dimensions without recourse to the optimality of the use of tax funds.

Table 5: Wald Test of Coefficient Restrictions

Test Statistic: Chi-square	Value	df	Probability
Aggregate	1.821	1	0.117
capital	0.356	1	0.19
recurrent	5.841	1	0.02
social services	6.503	1	0.01
productive services	1.428	1	0.26

The results of the Wald test reported in Table 5 show the strategy for testing the conclusions of the Barro model. In the test, three out of the four coefficients fail the Chi-square test at the 5 percent level. This indicates that there are very strong biases of tax-spending relationship with respect to output optimality. Apparently, spending structures that are not focused on economic or productivity services tend to deliver output elasticities that are divergent from the prevailing marginal tax rates. Based on the coefficient restriction tests conducted above, the reduced form estimate of the per capita output equation is estimated and presented in Table 6 below. The combined coefficient is negative (suggesting that spending levels are tax-led), and the quite similar to the spending and tax coefficients in the unrestricted results. Thus, a tax rate on output that will optimize output over time would lie between 15 and 16 percent of output. Moreover, this same proportion of output should form the minimum value of overall government annual budgetary applications.

TABLE 6: THE RESTRICTED EQUATION

Variable	Aggregate	Recurrent	capital recurrent	productive services	social services
Constant	-7.74* (-2.25)	-1.11 (-1.32)	-1.18 (-1.11)	-6.42 (-1.87)	0.44 (0.87)
g = tax	-0.18 (-1.01)	-0.05 (-0.92)	-0.06 (-1.69)	-0.16* (-2.55)	-0.03 (-1.38)
Lk	0.09** (5.33)	0.11** (6.17)	0.09** (4.93)	0.10** (11.8)	0.10** (5.28)
lh	1.64** (6.09)	0.83* (2.36)	0.86** (8.07)	1.43** (8.61)	0.66** (7.32)
R^2	091	0.76	0.69	0.86	0.77

Note: * and ** indicate significance at 5 and 1 percent respectively; t-values are in parentheses below each coefficient

V.   CONCLUSION

Tax structure analysis has been the main focus of this study, especially with respect to its implications for spending and long run growth. In view of its delicate nature as a government policy, tax administration has been considered from quite a number of perspectives, especially when it is related to economic performance and growth over time. In this study, tax structure in Nigeria and how it relates to productivity growth and overall economic performance is investigated. The changing structure of the Nigerian economy is considered in terms of the tax structure evolution. Three issues are considered, namely, responses of government spending to tax changes, tax-spending effects of growth of output per man, and the structural effects of taxes on growth over time. Using appropriate techniques and data for the period 1981 to 2013, the results indicate that company income taxes performs best in explaining changes in government spending while VAT performs worst. Also, spending patterns that are economic and productive tend to provide optimality for taxation in terms of productivity growth. In relation to tax structure, indirect taxes appear to be more output stimulating than direct taxes.

The policy implications of the results are that the changing structure of the Nigerian economy actually provides a veritable background for stimulating tax effects on growth. Moreover, growing the economy in terms of productivity and employment generation requires more appropriate tilting of the tax structure towards indirect taxation as well as channeling tax revenues to more productive uses.

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THE EFFECT OF NON-OIL FDI ON NON-OIL EXPORT PERFORMANCE IN NIGERIA: AN EMPHIRICAL ANALYSIS

By Hassan Ebhozele Oaikhenan and Oziengbe Scott Aigheyisi[1]

Abstract

The paper employs the bounds test approach to cointegration and error correction analysis as well as Granger causality test to investigate the effect of FDI inflows to the non-oil sector agricultural and manufacturing sub-sectors on the performance of non-oil export in Nigeria, using data that cover the 1981-2012 sample period. The results indicate that non-oil FDI adversely affects Nigeria's non-oil export performance. The study finds also that domestic investment enhances non-oil export performance in the country while the effect of exchange rate was found to be negative. In addition, the empirical results indicate that commercial bank loans and advances to the agricultural and manufacturing sub-sectors and the country's domestic income, proxied by the real GDP positively affect non-oil export. Policy options to enhance the performance of the country's non-oil exports include measures to boost domestic investment in the non-oil sector, greater but cautious liberalization of trade, reduction in tariffs on imported raw materials and technology utilized in domestic production, increased loans and advances to the sub-sectors and, articulation and implementation of policies that are capable of mitigating depreciation of the national currency.

1.   INTRODUCTION

The discovery of crude oil in 1956 at Oloibiri and subsequent exploitation of it in commercial quantities in Nigeria during the oil boom of the 1970s led to the rapid relegation and displacement of agriculture which hitherto was the mainstay of the nation's economy. Before this era, agriculture had accounted for over 40 percent of the country's gross domestic product. The sector provided substantial share of the funds used for implementing the first National Development Plan of 1962 to 1968. In addition, the period of oil boom witnessed the neglect of other non-oil sector such as manufacturing and solid mineral sectors (Umaru and Zubairu, 2012). Ever since, there has been persistent pressure on the Nigerian government to diversify the base of the economy away from crude oil to the non-oil sector, in view of the huge potential capacity of the sector to drive the Nigerian economy on the path of sustainable growth and development and having regard to the wasting nature of crude oil which once tapped is not replaceable *in situ* (Okojie and Oaikhenan, 2005). Added to this is

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the fact that the price of the commodity is affected by the vagaries in the international crude oil market and this serves largely to engender uncertainty in the economy in terms of foreign exchange earnings, revenue projections by the government and thus government budgets. Empirical findings in extant literature indicate that the Nigerian economy has been plagued by the "Dutch Disease" syndrome with the ascendancy of crude oil in the nation's economic landscape (Edo, 2002). Worse still, there are arguments in the extant literature that the Nigerian case represents the typical example of the textbook description of the so-called resource curse (Xavier and Subramanian, 2003).

Nigeria's economy is at present, highly dependent on earnings from the crude oil sector, which accounts for a large percentage of her total export earnings and government revenues. Official figures from the National Bureau of Statistics show that the sector is at present the largest recipient of FDI inflows in the country (Oaikhenan and Aigheyisi, 2014). The nation's dependence on the sector poses serious threat to the long-run growth of the economy, while the neglect of the non-oil sectors, especially agriculture and manufacturing constitutes a cog in the wheel of the country's economic growth and development (Oaikhenan and Aigheyisi, 2011). Following the rebasing of the country's GDP in 2014, the government, through the country's National Bureau of Statistics announced an increase in the share of the services sector in the country's total GDP to 51% from the previous 26%. Sadly, at the same time, the share of agriculture declined precipitously from 33% to 22%, while that of oil and gas accounted for just 15%. In spite of the realignment, oil continues to account for about 70% of government revenue and about 90% of foreign exchange earnings (Nwanma, 2016). The economy remains undiversified.

In contrast to the foregoing, there are arguments in the extant literature that the non-oil sector holds the key to sustainable growth and development of the Nigerian economy. Indeed, that there is a dire need to develop the sector in order to drive the growth of the economy can neither be overemphasized nor downplayed, having regard to the vastness of the sector and its potential as a growth driver (Aigheyisi, 2015). The Export-Led-Growth (ELG) hypothesis attributed to Findley (1984) and Krueger (1985) underscores the relevance of exports to economic growth. Countries with large export base grow, unequivocally, more rapidly than those with narrow export base. Put slightly differently, the ELG hypothesis states that a *well diversified export base engenders growth and development of an economy* (Aigheyisi, 2015). The potential of an undiversified export base to drive economic growth and development of developing countries is fundamentally limited since their exports, being largely of the primary type, are susceptible to price fluctuations and export earnings instability. The Prebisch-Singer hypothesis succinctly captures the deleterious nature of the consequences of the declining

commodity terms of trade that tends to be accentuated by a narrow export base on the developmental aspirations of the less developed countries.

Nigeria's exports (and re-exports) comprise oil and non-oil components, with agriculture and manufacturing sectors being the major sources of the non-oil component. While oil export performed impressively until recently (late 2014/January 2015) when the price of crude oil nosedived owing to the glut in the international crude oil market, the performance of the country's non-oil exports has been regrettably poor due to the neglect of the sector by successive governments over the years. These, coupled with implementation of various faulty policies by the government plunged the economy into the current recession.

A number of studies that have investigated the effect of aggregate FDI on exports in Nigeria and other countries and regions are in the extant literature. However, none arguably has investigated specifically, the effect of inflow of FDI to the non-oil sector, and in particular, the manufacturing and agricultural sectors (the dominant sources of Nigeria' non-oil export commodities), on the performance of the country's non-oil exports. This is the gap in the literature that this paper seeks to fill. It is expected that findings in the study would guide policy formulation and implementation that are geared towards enhancing the development of the non-oil sector and thus the performance of the sector in terms of boosted non-oil exports, and the country's foreign exchange earnings. Accordingly, the key objective of the study is to investigate the impact of foreign direct investment inflow to the agriculture and manufacturing sub-sectors of the non-oil sector on the performance of Nigeria's non-oil exports. The research question addressed in the paper relates to whether the inflow of FDI to Nigeria's non-oil sector promotes or inhibits the country's non-oil export performance. The study proposes and tests the hypothesis that FDI inflows to the non-oil sector do not significantly affect the country's non-oil exports performance.

1.1   The Problem

Until recently when the Federal Government began to take deliberate steps towards diversifying the country's economy away from crude oil to the non-oil sector, the share of non-oil exports in total export and its contribution to the country's gross domestic product were pitiably low. This was as a result of the neglect of the sector which had been the mainstay of the nation's economy before the discovery and exploitation of crude oil in commercial quantities. Since crude oil became an essential commodity that was required to fuel the growth of mostly the industrial economies, it attracted favourable prices in the international crude oil market. This explains the massive flow of resources to

develop the sector, as it became the sustaining sector relied upon by the government for revenue generation and foreign exchange earnings. At the same time, however, other sectors particularly agriculture and manufacturing were relegated to the background. The neglect of these sectors consequently brought about sharp decline in domestic output of agriculture and manufactures and as a consequence, non-oil exports also declined significantly. The contribution of non-oil export to GDP was negligible as the data in Table 2 shows. The decline in output of the agricultural and manufacturing sectors necessitated the rise in the demand for import to meet the growing need for food and cash crops as well as manufactured items. Indeed, the Federal Ministry of Agriculture and Rural Development (2016) identified two key gaps in Nigeria's agriculture, namely inability to meet domestic food requirement and inability to export at quality levels required for export market success. Increase in import demand adversely affected domestic investment in these sectors as local investors could not compete with foreign investors/producers based in more advanced countries where production conditions are more favourable. The decline in domestic investment in the non-oil sector of the economy, not unexpectedly, engendered a concomitant decline in non-oil exports.

In 1995, the Nigerian Investment Promotion Council (NIPC) Act, Number 16 came into force. By the Act, all sectors of the economy were opened up to foreign participation except for a short negative list (drugs and arms). The Act made possible 100% foreign participation in all sectors, with the exception of the petroleum sector where FDI was limited to joint ventures and production sharing (UNCTAD, 2009 as cited in Oaikhenan and Aigheyisi, 2015). In spite of this, foreign direct investment into the petroleum sector still dominates in sectoral FDI inflows into the economy (Table 3) while the share of oil export in total export and the contribution of oil export to the GDP continue to dominate those of non-oil export (See Figure 1 and Table 1).

Recently, in the face of falling oil prices which adversely affected the country's oil revenue, government intensified its efforts at reviving the non-oil sector in recognition of the potential of the sector as driver of long-run growth. To this end, policies and programmes that are aimed at enhancing the investment climate to attract foreign direct investment into the sectors are being put in place. Such policies include the Agriculture Transformation Agenda (ATA) launched in 2012 for the purpose of refocusing Nigeria's attention at agriculture and the National Automotive Industry Development Plan (NAIDP) of 2013 which seeks to discourage importation of vehicles, encourage local production and transform Nigeria into Africa's automotive hub. These policies, according to the National Bureau of Statistics, succeeded in attracting the needed FDI into the agricultural and manufacturing sub-sectors. It could be argued, however, that the FDIs were channeled into the sub-sectors not necessarily to enhance the

performance of exports from the sub-sectors *per se* but to take advantage of the huge domestic market that exists for agricultural commodities and manufactures.
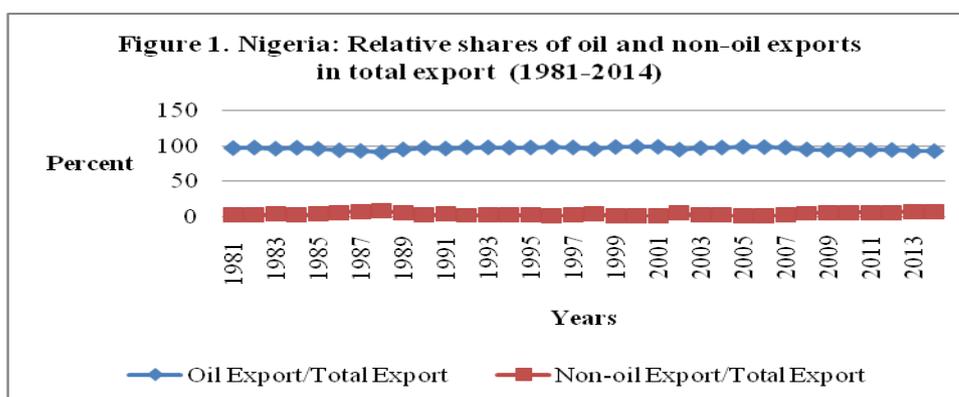
Source: Data from the CBN StatisticsI Bulletin, 2012

Table 1. Structure of Nigeria's Exports (% share)

Product Description	1970	1980	1990	2000	2012
Food and live animal	19.1	3.1	1.4	0.0	4.8
Beverages and tobacco	0.0	0.0	0.0	0.0	0.2
Crude materials and inedible	14.0	0.8	0.6	0.1	7.7
Mineral fuels and lubricants	58.1	95.1	96.6	99.6	84.0
Animals and vegetable oils and fats	3.8	0.2	0.0	0.0	0.0
Chemicals	0.0	0.0	0.2	0.0	0.2
Manufactured goods	4.5	0.3	0.4	0.1	1.5
Machinery and transport equipment	0.0	0.0	0.0	0.1	1.3
Miscellaneous manufactured articles	0.0	0.0	0.1	0.0	0.2
Commodity & transacts. Not Classified Acc.	0.5	0.4	0.6	0.0	0.0
Total Trade	**100**	**100**	**100**	**100**	**100**

Source: World Integrated Trade Solutions (WITS) Database (http://wits.worldbank.org); Culled from Adewuyi and Arawomo (2014).

Table 2. Average Contributions of Oil and Non-oil Exports to GDP (In percentages)

Years	Oil Exports	Non-oil Exports
1981-85	8.35	0.28
1986-90	15.69	0.87
1991-95	22.06	0.54
1996-00	26.49	0.58
2001-05	33.25	0.86
2006-10	34.39	1.43
2011-14	18.44	1.29

Source: CBN Statistical Bulletin, 2015

Table 3. Average Oil and Non-oil FDI in Nigeria (1960-2013)

Years	Oil FDI (N'million)	Non-oil FDI (N'million)
1960-64	136.65	290.57
1965-69	422.12	444.5
1970-74	762.5	690.18
1975-79	771.48	1695.24
1980-84	678.28	4023.52
1985-89	1910.86	7264.02
1990-94	12213.14	14253.68
1995-99	58317.38	42577.6
2000-04	61577.9	74597.34
2005-09	99222.7	235771.9
2010-13	99993.43	274326

Source: CBN, 2013, culled from Mohammed and Ekundayo, 2014

As shown in Table 1, Nigeria's non-oil exports consist mainly of agricullture and manufactures, implying that the services sector which includes telecommunication and banking, among others, does not feature in the structure and sectoral composition of the country's non-oil exports. The narrow export base of the economy, undoubtedly, contributes to the low level of the country's non-oil exports. Thus, Adenuga and Dipo (2013) lament that Nigeria's non-oil export have performed below expectation. To them, this tends to cast doubt on the effectiveness of the export promotion strategies adopted thus far by the country. Fundamental development problems loom large if conscious and deliberate steps are not taken to address these challeges, using carefully articulated policies.

2.   SURVEY OF THE THEORETICAL AND EMPIRICAL LITERATURE

2.1   Brief Theoretical Literature

Rahmaddi and Ichihashi (2012) as cited in Aigheyisi (2015) note that FDI theory proposes the possibility of export-promoting effect in host country. Lee (2007) identifies the flying gees model and the new growth theory as theories that help explain the theoretical linkage between FDI and host country's exports. These theories argue that FDI positively influences host country's export performance. FDI is the means of technology diffusion. The flying gees model was first developed by Akamatsu (1935) and later expanded by Kojima (1960). It explains the process by which older technology from a more developed economy is passed on to less developed economies to aid their development, while the more developed economy moves on to adopt newer teechnology to enhance its own development.   Application of improved technology in domestic production causes expansion in output which is the base for export. The new growth model (endogenous growth model) identifies FDI as a strong determinant of economic growth. Sharma (2001) identifies export performance as one of the channels through which FDI affects growth. This suggests that where FDI positively affects the performance of export, this invariably translates into positive spillover effect on growth in line with the export-led growth hypothesis.

Two effects of FDI on export performance which are identified in Kutan and Vuksic (2007) are the supply capacity-increasing effects and the FDI specific effects. According to them, the supply capacity-increasing effects arise when FDI inflows engender increases in the host country's production capacity which in turn increases export supply potential, in accordance with the vent for surplus theory of trade, which as propounded by Adams Smith (1776) relates exports to output. The FDI-specific effects arise because the multinational firms (through which FDI is channeled into the host country) may have superior knowledge and technology, better information about export markets or better links to the supply chain of the parent market than do the local firms in transition economies. Kugler (2006) demontrates that the activities of multinational firms operating in a country can convey valuable information about foreign markets opportunities which domestic manufacturers could take advantage of. However, Kugler (2000)

notes that knowledge diffusion from the multinationals to other competing manufacturers may be unlikely as propagation of technical knowledge to competitors may engender a loss of market share. FDI channeled into an economy through foreign firms or multinationals increases the supply of capital required to boost output in the host country as well as enhance the competitive

advantage of domestic firms (Bilsen and Maldegem, 1999; Anwar and Nguyen, 2011; Kuntluru, Muppani and Khan, 2012, as cited in Aigheyisi, 2015).

2.2   **Review of Empirical Literature**

Leichenko and Erickson (1997) assess the effects of FDI on manaufacturing export performance of US states during the period 1980 through 1991. The results show that FDI inflows to the US are positively related to future improvements in the performance of state manufactured exports.

Sharma (2000) employs the two stage least squares estimation technique to investigate the role of FDI in export performance in India, using data that spanned the 1970 to 2008 sample period within a simultaneous equations framework. The analysis shows that though FDI positively affects export performance, the effect is not statistically significant. Keme, Mukherjee and Nikolsko-Rzhevskyy (2009) investigate the effect of FDI on export performance of large samples of India information technology (IT) firms in the period from 2000 to 2006. A logit model of the probability of export, and pooled Tobit and Fixed and Random Effect Tobit models of the volume of export were estimated to examine the effects of FDI on export behaviour of recipients and non recipients competing firms in the IT sector. The results indicate that for FDI recipients, the probalibility of exporting, and the volume of exports are greater. Further evidence is that there is a spillover of the effects of FDI to non recipients as their probability of exporting also increases. Prasanna (2010) examines the impact of FDI inflows and manufacturing output on export performance in India in the period 1991/92 to 2006/07 using the least squares estimation technique. The study finds that the impact of FDI inflows on the performance of the country's import is positive and significant. It, however, finds that India manufacturing did not contribute significantly to enhancing export performance during the period.

In addition to the foregoing, Kuntluru, Muppani and Khan (2012) analyse the impact of FDI on the export performance of India's pharmaceutical firms using panel data analysis. The study reveals that foreign ownership negatively impacts on export performance of pharmaceutical products. It further finds that foreign owned pharmaceutical firms export less and focus more on domestic demand. Sultan (2013) examines the relationship between FDI and export in India within 1980 to 2010 sample period, using Granger causality analysis based on vector error correction model. The analysis shows unidirectional causality between FDI and exports in the long-run, with causality running from exports to FDI inflows. Furthermore, it shows no evidence of causality between both variables in the short-run.

Zhang (2005) investigates the effect of FDI on the performance of China's exports, using cross-sectional data on 186 industries in 1995. The study finds that FDI has predominant influence on China's export performance and this influence is much stronger than that of domestic capital. Further evidence from the study is that the influence of FDI on exports is larger in labour-intensive industries than in capital-intensive industries. Wang et al (2007) also examine the relationship between inward FDI and export performance in China in the 1983 to 2002 sample period. The results show that FDI promotes exports by foreign-owned as well as domestically-owned firms and the effect is strongest for labour-intensive industries. The study further finds that the observed effects are independent of the country of origin of the investors. Gu, Awokuse and Yuan (2008) also examine the effect of FDI on China's exports performance, using disaggregated data on 14 (fourteen) manufacturing sub-sectors within Mainland China. Data used which covered the 1995-2005 sample period were analysed with panel data regression techniques. Evidence from the estimated fixed effect regression model selected based on the Hausman test suggests that the effect of FDI inflows to the various sub-sectors on China's export was positive and significant.

Ancharaz (2005) examines the impact of FDI on the performance and competitiveness of exports of Mauritian manufacturing sector, using data that covered the 1971 to 1998 sample period and with the ordinary least squares estimation technique. The study finds that though FDI has been instrumental to the development of the country's exports, yet its impact on the the competitiveness of the country's exports was not signigficant.

Chang (2005) employs the vector regression methods of variance decomposition and impulse response to investigate the dynamic interactions among FDI, economic growth, export and unemployment for the Taiwanese economy. The results show that economic growth and exports have positive impacts on FDI inflows, and that export expansion negatively impacts FDI outflow (in other words export expansion is associated with reduction in outflow oF FDI). Further evidence from the analysis is that FDI positvely impacts economc and export performance. Lee (2007) investigates the impact of inward FDI on Taiwanese export performance in the period 1952 to 2005. The study finds the effect of FDI on Taiwanese export performance to be positive and significant. Using Lumsdaine and Papell (1997) approach which allows two endogenous structural breaks, the Johansen and Juselius cointegration technique and Granger causality test, Jayanthakumaran and Lee (2011) examine the association and causal relationship between inward FDI and Taiwanese exports, using data that covered the 1952 to 2005 sample period and for Chinese exports, using data that covered 1979 to 2005 sample period. The results show,

inter alia, that for Taiwan's economy, FDI Granger causes exports, while the reverse is the case for China as export is observed to Granger cause FDI.

The effect of foreign investment on the exports of Venezuelan manufacturing firms was investgated by Kugler (2006) using panel data set covering the 1995-2001sample period. The study finds that the demand for inputs by multinational corporations is a strong determinant of the extent to which FDI stimulates exports. If viable variety and quality improvements emanate from demand for intermediates by multinational corporations, then the production process of downstream local producers in other sectors could be enhanced to the point of boosting exports.

Abor, Adjasi and Hayford (2008) estimate a probit model and random effect panel regression model to investigate the effect of FDI on the export decisions and export performance, respectively, of firms in the Ghanaian manufacturing sector. They use data data that cover the 1991-2010 sample period. The results from the probit model indicate that FDI has a positive effect on the firms' decision to export their productss, while the random effect panel regression result indicates a positive relationship between FDI and export performance.

Enimola (2011) examines the link between FDI and export growth in Nigeria, using Granger causality analysis. The study finds unidirectional causality between FDI and export with causality running from FDI to export, an indication that FDI investment is a significant predictor of export earnings in Nigeria. However, the results obtained in a recent study of the effect of import penetration and FDI on the performance of non-oil export in Nigeria by Aigheyisi (2015) using 1981 to 2012 data and with cointegration and error correction techniques shows that the short-run and the long-run effects of FDI on the performance of non-oil export in the country are not statisitically significant. The empirical findings are attributed to the fact that FDI inflows to the non-oil sector within the period is quite diminutive compared to the amount of FDI that goes into the oil sector.

Adhikary (2012) investigates the impact of foreign direct investment on the performance of Bangladesh's exports while controlling for the effects of trade openness, domestic demand and exchange rate.Data uesd covered the 1980-2009 sample period. The vector error correction modeling technique was utilized in the study. The empirical evidence obtained indicates that FDI impacts positively and significantly on changes in exports in both the short and the long runs.

Eryigit (2012) investigates the effect of FDI from 15 countries making direct investment in Turkey on the country's export volume in the 2000-2010 period, using panel data regression technique. The empirical findings indicate, amongst

others, the existence of a long term relationship between FDI and the country's export volume.

Iwamoto and Nabeshima (2012) employed the dynamic panel system GMM estimation technique to investigate whether or not FDI stock and inflows promote export diversification and sophistication of host (developed and developing) countries, using data that covered the 1980-2007 sample period. The analysis indicates that five-year lagged FDI inflow correlates positively with both export diversification and sophistication and that FDI stock makes positive contribution to export sophistication. They note that the positive FDI impacts exist only in developing countries. Cetin and Altinas (2006) also find that changes in the export competitiveness of developed and developing countries are signifciantly and positively related to the level of inward FDI.

Keho (2015) employed Granger-causality test to examine the relationship between FDI and exports in Cote d' Ivoire, using tdata that covered the 1970-2007 sample period The analysis revealed the existence of a unidirectional causality between both variables with causality running from exports to FDI.

Mwakanemela (2014) employed the ordinary least squares and vector error correction techniques to examine the impact of FDI inflows, trade openness and inflation on manufacturing export performance of Tanzania, using time series data that covered 1980-2012 sample period. The study finds that FDI inflows and trade openness exert positive impact on the performance of the country's manufacturing exports. The impact of inflation was found to be negative.

3.   THE MODEL, EMPIRICAL METHODOLOGY AND DATA SOURCES

3.1   The Model and Methodology

Building on the Smith-Myint Vent for Surplus theory of trade which relates export to domestic output, the study specifies the model to be tested in its functional form as:

$$NOXPERF = f(RGDP^+, NOFDI^+, INV^+, CBLAM^+, TOPEN^+, EXRT^+) \qquad (1)$$

where: NOXPERF = Non-oil export performance measured as value of non-oil export as a ratio of the GDP; FDI = foreign direct investment into the agricultural and manufacturing sub-sectors (as percentage of GDP) being the source of Nigeria's major non-oil exports; RGDP = real gross domestic product; INV = domestic investment ratio, measured as the change in gross fixed capital formation as a percentage of GDP; CBLAM = Commercial banks loans and advances to the agricultural and manufacturing sub-sectors as percentage of total loans and advances extended by the commercial banks to the economy;

TOPEN = Trade openness, measured as the ratio of total trade (export plus import) to GDP, EXRT = Nominal Naira/US Dollar Exchange Rate. The presumptive signs are superscripted beside each variable.

The methodology adopted for the study is the ARDL-Bounds Test Approach to Cointegration and Error Correction Analysis (Pesaran and Shin, 1999; Pesaran, Shin and Smith, 2001). The choice of this methodology is informed by the need to investigate the short-run and long-run effects of export diversification or concentration and import penetration on the growth of Nigeria's economy. This approach to cointegration and error correction has three distinct advantages over other error correction methodologies. First, it is suitable for estimating models involving data that are of mixed-order of integration but cointegrated; second, it is relatively more efficient in cases of small and finite data sizes; and third, it yields unbiased estimates of the long-run model and valid t-statistics even in the presence of endogenous regressors (Harris and Sollis, 2003). Prior to the cointegration and error correction analysis, the study tests the variables for the time series property of stationarity, using the Augmented Dickey Fuller (ADF) test. The ADF test is complemented with the Dickey Fuller Generalised Least Squares (DF-GLS) test.

The estimation methodology entails estimating an unrestricted error correction model (UECM) of interest specified as:

$$
\begin{aligned}
\Delta LNOXPERF_t = \ & a_0 + \sum_{j=0}^{n1} \left(\phi_j \Delta LNOXPERF_{t-j} \right) + \sum_{i=0}^{m1} (\theta_i \Delta LRGDP_{t-i}) + \sum_{x=0}^{P1} (Ч_x \Delta LNOFDI_{t-x}) + \sum_{r=0}^{q1} (\partial_r \Delta INV_{t-r}) \\
& + \sum_{w=0}^{v1} (\Pi_w \Delta LCBLAM_{t-w}) \\
& + \sum_{c=0}^{z1} (\psi_c \Delta LTOPEN_{t-c}) + \sum_{w=0}^{v1} (\eta_w \Delta LEXRT_{t-w}) + \lambda_1 \Delta LRGDP_{t-1} + \lambda_2 \Delta LNOFDI_{t-1} \\
& + \lambda_3 \Delta LINV_{t-1} + \lambda_4 \Delta LCBLAM_{t-1} + \lambda_5 \Delta LTOPEN_{t-1} + \lambda_6 \Delta EXRT_{t-1} \\
& + \xi t \qquad\qquad\qquad\qquad\qquad (2)
\end{aligned}
$$

Where a_0 is the drift component, Δ is the (first) difference operator, ξ_t represents white noise error term. Equation 2 is estimated with the OLS estimation technique so as to test for the joint significance of the coefficients of the lagged levels of variables using the F-statistic test. Thus the null hypothesis: $\lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 = \lambda_6$ is tested against the alternative hypothesis: $\lambda_1 \neq \lambda_2 \neq \lambda_3 \neq \lambda_4 \neq \lambda_5 \neq \lambda_6$. The computed F-statistic is compared with two critical values (lower bound and upper bound critical values) at a chosen level of statistical significance. By way of decision rule, we note that if the F-statistic is greater than the upper bound

critical value at a chosen significance level, then it can be inferred that a level relationship (or long-run relationship) exists between the dependent variable and the explanatory variables, implying that they are cointegrated. On the other hand, if the F-statistic is less than the lower bound critical value, this is an indication of absence of cointegration. An F-statistic value that lies between the lower and upper bounds makes for an inconclusive decision as it lies in the region of indecision.

The empirical long run (static) version of equation 1 expressed in its logarithmic form is specified as:

$$LNOXPERF_t = \beta_0 + LRGDP_t + \beta_2 LNOFDI_t + \beta_3 LINV_t + \beta_4 LCBLAM_t + \beta_5 LTOPEN_t + \beta_5 LEXRT_t + \varepsilon_t \qquad (3)$$

The error correction version of equation (3) is further specified as:

$$\Delta LNOXPERF_t =$$

$$a_0 + a_1 \Delta LNOXPERF_{t-1} + \sum_{i=0}^{m} \left(\theta_i \Delta LRGDP_{t-i} \right) + \sum_{j=0}^{n} \left(\chi_j \Delta LNOFDI_{t-j} \right) + \sum_{k=0}^{p} \left(\partial_k \Delta LINV_{t-k} \right) +$$

$$\sum_{l=0}^{q} \left(\phi_l \Delta LCBLAM_{t-l} \right) + \sum_{v=0}^{r} \left(\pi_v \Delta LTOPEN_{t-v} \right) + \sum_{c=0}^{s} \left(\varphi_c \Delta LEXRT_{t-c} \right) + \Omega ECT_{t-1} + \mu_t \qquad (4)$$

where Δ is the difference operator, L represents natural logarithm, ε and μ in equations 3 and 4, respectively are error terms, assumed to satisfy the standard white noise properties of zero mean, unit variance and zero covariance. The β's are the long run parameters, θ_i, χ_j, ∂_k, ϕ_l, π_v, and φ_c are the short run parameters, indicating the short run effects of the explanatory variables on the dependent variable. m, n, p, q, r, s are appropriate lags of each variable in the ECM. Ω is the error correction coefficient, and it is expected, *a priori*, to be negatively signed (and statistically significant) to play the role of error correction in the model. Our analysis, furthermore, involves investigating the causal relationship among the variables, using the pairwiise Granger causality test.

Data for the estimations are obtained from various secondary sources, including various issues of Statistical Bulletin, published by the Central Bank of Nigeria (CBN), various issues of CBN Annual Report and Statement of Accounts, etc. The estimation of the model is carried out using the EVIEWS 9 Interactive Econometric Software.

3.2.   *A priori* expectations

3.2.1   Non-oil FDI, Domestic Investment and Output (Real GDP)

The inflow of FDI into specific sectors of an economy is expected to boost the output of that sector (if FDI had been complementary to domestic investment therein) and may also have positive spillover effect on other sectors. Where surplus results from expansion of output, the surplus is exported, according to the

Smith-Myint Vent for Surplus theory of international trade. Thus ceteris paribus, a positive relationship is expected between non oil FDI and non-oil export performance.

Growth theories emphasize the role of domestic investment in the growth of output. Investment is a major determinant of economic growth, which in turn determines the level of output. The dearth of domestic investment in less developed countries (LDCs), it is argued, is responsible for the low level of domestic production and the low level of export. The inflow of FDI into the LDCs according to the two-gap theory which is considered an extension of the Harrod-Domar model is expected to complement domstic investment, close the savings gap (that engendered the shortage of investment in the first place), and ultimately bring about expansion of output and export, *ceteris paribus*.

3.2.2   Exchange Rate

International trade theory predicts a positive relationship between exchange rate of domestic currency and export. *Ceteris paribus*, an increase in the exchange rate (that is, a depreciation (devaluation) of the domestic currency) is expected to boost exports as the exported commodity becomes cheaper in the foreign market while at the same time curbing imports as the imported commodity becomes more expensive in the domestic market. However, where the output of a country is low, and the country is highly import dependent, the theory may not hold. A fall in the value of the local currency of a highly import dependent economy could trigger increase in domestic inflation which has the potential to affect adversely the competitiveness of the country's export in foreign markets, leading to declines in exports and export earnings.

3.2.3   Trade Openness

A *priori* reasoning considers that economies that are more open should export more than those that are less open. Openness of the economy effected by way of trade liberalisation and implementation of export promotion policies, such as creation of export processing zones, reduction of export duties, etc, will, expectedly, enhance the performance of a country's export. This, however, results if there is increase in domestic production. Thus in this study, trade openness is hypothesised to positively affect the performance of Nigeria's non-oil export. Hoque and Yusop (2012) have shown that export expansion is engendered by the interaction of trade liberalisation with output, proxied by gross domestic product. Santos-Paulino (2002) has also shown that trade liberalisation positively affects export performance.

3.2.4 Commercial Bank Loans and Advances to Agriculture and Manufacturing Sectors

Bank loans extended to the non-oil sub-sectors of the economy such as the agricultural and manufacturing sub-sectors can boost the level of activities in the sub-sectors, as such loans complement investment the sub-sectors and ultimately raise their volume of output, and given favourable trade policies, enhance their export potentials.

4.   EMPIRICAL RESULTS

4.1.   Unit root test

The summary of the results of the unit root test of the variables, using the Augmented Dickey Fulley (ADF) and the DF-GLS tests are presented in Table 4.

Table 4. Summary of unit root test results

Augmented Dickey Fuller Test (ADF)						
Variables	Levels			First Difference			Order of Integration
	ADF test stat	Test Critical Value (5%)	Inference	ADF test stat	Test Critical Value (5%)	Inference	
Log(NOXPERF)	-2.7011	-3.5629	NS	-6.3050	-3.5684	S	I(1)
Log(NOFDI)	-1.7853	-3.5629	NS	-6.0761	-3.5684	S	I(1)
Log(INV)	-3.4387	-3.5629	NS	-7.6861	-3.5684	S	I(1)
Log(RGDP)	-1.6206	-3.5629	NS	-4.3745	-3.5684	S	I(1)
Log(TOPEN)	-3.4387	-3.5629	NS	-7.6861	-3.5684	S	I(1)
Log(CBLAM)	-1.9878	-3.5629	NS	-6.9589	-3.5684	S	I(1)
Log(EXRT)	-0.9694	-3.5629	NS	-5.1567	-3.5684	S	I(1)
Dickey Fuller Generalised Least Squares (DF-GLS) Test						
Variables	Levels			First Difference			Order of Integration
	DF-GLS test stat	Test Critical Value (5%)	Inference	PP test stat	DF-GLS test stat	Inference	
Log(NOXPERF)	-2.8014	-3.1900	NS	-6.0765	-3.1900	S	I(1)
Log(NOFDI)	-2.0789	-3.1900	NS	-6.2469	-3.1900	S	I(1)
Log(INVR)	-2.0873	-3.1900	NS	-5.7704	-3.1900	S	I(1)
Log(RGDP)	-1.4283	-3.1900	NS	-4.4508	-3.1900	S	I(1)
Log(TOPEN)	-3.2417	-3.1900	S	-7.4990	-3.1900	S	I(0)
Log(CBLAM)	-1.8572	-3.1900	NS	-7.1867	-3.1900	S	I(1)
Log(EXRT)	-1.1696	-3.1900	NS	-5.2323	-3.1900	S	I(1)

NS = Non stationary; S = Stationary

The ADF unit root test result shows that all the variables are I(1). The confirmatory test performed using the DF-GLS approach to be certain that none of the

variables is I(2) as this would affect the validity of estimation result, shows that all the variables are indeed integrated of order 1, that is they are I(1) with the exception of the trade openness variable which is I(0). Having regard to the mixed order of integration, the appropriate method employed to test for cointgration of the variables is the ARDL bounds test approach to cointegration.

4.2. Test for Cointegration (Bounds Test Approach)

The result of the ARDL bounds test for cointegration is presented in Table 5.

Table 5. Result of test for cointegration (ARDL Bounds Test Approach)

Sample: 1983 2012		
Included Observations:30		
Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	3.4228	6
Critical Value Bounds		
Significance	Upper Bound	Lower Bound
10%	1.99	2.94
5%	2.27	3.28

The result indicates existence of long run cointegrating relationship between non-oil export performance and the included explanatory variables as the computed F-statistic is greater than the upper critical bounds at the 5% significance level. Thus the null hypothesis of no long run relationships is rejected at the significance 5% level. In view of the fact that the variables are cointegrated, the dynamic (short run) relationship between them can be represented with an error correction model.

4.3.   Model estimation results

The results of estimation of the error correction version of the model and the long-run version of the model model based on an estimated ARDL model (shown in Table A1 in the appendix) are presented in Table 6 below.

Table 6. Estimated Error Correction and Long Run Models.

Dependent Variable: Log (NOXPERF)			
Sample: 1982 2012			
Included Observation: 30			
Cointegrating Form			
Variable	Coefficient	t-statistic	Prob
DLog(NOFDI)	-0.3533	-1.7776	0.0924
DLog(INVR)	0.3690	1.7063	0.1051
DLog(INVR(-1))	0.6783	3.0109	0.0075
DLog(RGDP)	1.9969	1.9668	0.0648
DLog(TOPEN)	0.7448	3.3914	0.0033
DLog(TOPEN(-1))	0.6243	2.3338	0.0314
DLog(CBLAM)	0.2244	0.8755	0.3928
DLog(EXRT)	-0.3527	-2.4585	0.0243
CointEq(-1)	-0.7266	-5.9901	0.0000
Long Run Coefficients			
Log(NOFDI)	-0.4883	-1.4105	0.1754
Log(INVR)	-0.2138	-0.4184	0.6806
Log(RGDP)	3.2321	3.2582	0.0044
Log(TOPEN)	-0.4439	-0.9434	0.3595
Log(CBLAM)	0.1304	0.3489	0.7312
Log (EXRT)	-0.4860	-2.1364	0.0466
C	-13.1684	-2.3750	0.0289

The cointegrating form of the result (that is the error correction model showing the short-run effects of the explanatory variables on the dependent variable) indicates that non-oil FDI as percentage of GDP is negatively related to non-oil export performance. The relationship is, however, weakly significant at the 10% level. The negative sign is contrary to *a priori* expectation. It suggests that within the period under review, FDI did not contribute to the growth of Nigeria's non-oil exports. This implies that it may at best have helped to expand domestic output of agricultural products and manufactures (Oloyode, 2014). This observation corroborates the findings in Kuntluru et al (2012) for India's pharmaceutical industry where foreign ownership negatively affects export performance of pharmaceutical products as foreign owned firms export less and focus more on domestic demand. In the same vein, it is hardly contentious that the motive behind channeling of FDI into the non-oil sub-sectors of Nigeria's economy particularly the agricultural and manufacturing sub-sectors by foreign investors has been to take advantage of the huge market that exists for these products in

the country and to expand their share of the market primarily with a view to maximizing the returns on their investments, and much less to produce and export from the country. This is in contrast to the findings for the Chinese economy by Zhang, 2005; Wang et al 2007; Gu, et al 2008 and for the Taiwanese economy by Chang, 2005; Lee, 2007; Jayanthakumaran and Lee, 2011. The negative sign of the coefficient is also an indication that the inflow of foreign direct investment to the agricultural and manufacturing sub-sectors of the economy possibly had displacement effect on domestic investment within the period covered by this study. In other words, FDI inflows into the sub-sectors under consideration rather than complementing domestic investment in these sub-sectors may actually have substituted (or displaced) it. This argument aligns with Eregha's (2011). Thus, increased inflow of FDI to the major sub-sectors that account for Nigeria's non-oil exports engendered a decline in the performance of the exports of the sub-sectors within the period covered by this study.

The substitution/displacement argument which the study adduces in the foregoing is further corroborated by the empirical results which indicate that domestic investment rate is a significant positive determinant of export performance. This clearly shows that domestic investment in the economy is a major driver of the performance of Nigeria's non- oil export. Not unexpectedly, the contemporaneous effect of investment on non-oil exports is not significant, considering that there could be some lags in the effect of investment on output. The effect of the one period lagged domestic investment variable is positive and highly statistically significant even at the 1% level. Specifically, a 10% increase in the domestic investment variable lagged one period engenders about 6.8% increase in the contribution of non-oil exports to GDP.

The vent for surplus theory is upheld by the observed positive and statistically significant coefficient of the real GDP variable. Real GDP positively affects non-oil export performance and the effect is significant at the 7% level. This is an indication that expansion in real output (if it results in a surplus) engenders increase in the contribution of non-oil exports to the GDP. A 10% increase in real GDP will cause the contribution of non-oil export to GDP to rise by approximately 2%. The study finds the effect of trade openness on the performance of the country's non-oil exports to be positive and significant. The contemporaneous and lagged impacts are significant at the 1% and 5% levels, respectively, thus underscoring the relevance of openness of the economy to trade to the export of non-oil goods.

The relationship between the percentage of commercial banking sector loans and advances to agriculture and manufacturing sub-sectors in total loans and advances to the various sectors of the economy is positive as expected, but not statistically significant. The non-significance indicates that the amount of loan

and advances extended by the commercial banks to the non-oil sub-sectors in focus, namely, agriculture manufacturing, may have been quite low compared to the amount extended to the oil sector. As a matter of fact, many Nigeria banks held much of the their assets in the form of oil assets/wealth when the price of oil was favourable in the international crude oil market, and the oil sector yielded much returns on investment to its investors as at that period. However, the recent fall in the prices of crude oil was partly responsible for the crises that hit the Nigeria banking sector which resulted in the fall in the profits and value of assets of many of the banks. The positive sign on the coefficient suggests that increases in commercial banks loans and advances to the non-oil sector have the potential to enhance the performance of the country non-oil exports.

The coefficient of the exchange rate variable is negatively signed, contrary to expectation, but statistically significant. The positive sign contradicts the theoretical proposition that a depreciation of the local currency should enhance the country's exports. The counter-intuitive finding possibly derives from the highly import dependent nature of the Nigerian economy which has tended to generate much inflation as a result of increases in the prices of agricultural and manufacturing inputs much of which is imported. A high and possibly rising rate of inflation adversely affects domestic production and hence exports. The empirical result specifically indicates that a 10% depreciation in the exchange rate causes the contribution of non-oil export to GDP to decline by 3.5%.

The error correction term has the expected negative sign and it is highly statistically significant. The negative sign further confirms the existence of a long-run relationship between the dependent variable and the explanatory variables. The absolute value of the coefficient of the error correction term is indicative of a high speed of adjustment from short run disequilibrium to equilibrium in the long run in the event of a temporary displacement there-from. The parameter estimate indicates that about 73% of disequilibrium in the system is offset by short run adjustment annually to maintain equilibrium.

The long run estimates show that real GDP and exchange rate significantly affect non-oil export performance in the long-run. A 10% sustained increase in the real GDP is associated with 32% increase in the contribution of non-oil exports to GDP, while a 10% sustained depreciation in the exchange rate of the domestic currency in relation to the U.S dollar (the key currency in which much of the country's foreign transactions is denominated) is associated with about 4.9% decline in the contribution of non-oil exports to the GDP. The long run effects of the other variables on non-oil export performance are not statistically significant.

4.4.   Test for Structural Stability of the Model

The cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squared recursive residuals (CUSUMSQ) are employed to test the stability of the model. The need for the test is underscored by the fact that model stability enhances the reliability of a model for policy formulation The results of the test are presented in Figures 2A and 2B

Figure 2A. Plot of cumulative sum of recursive residuals

Figure 2B. Plot of cumulative sum of squared recursive residuals
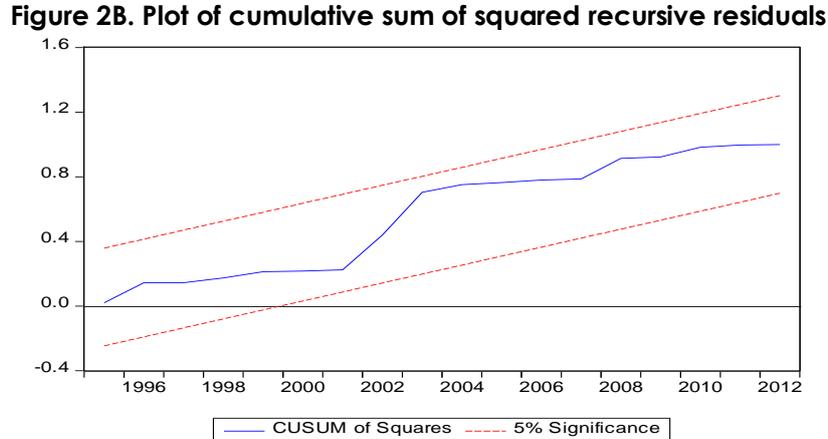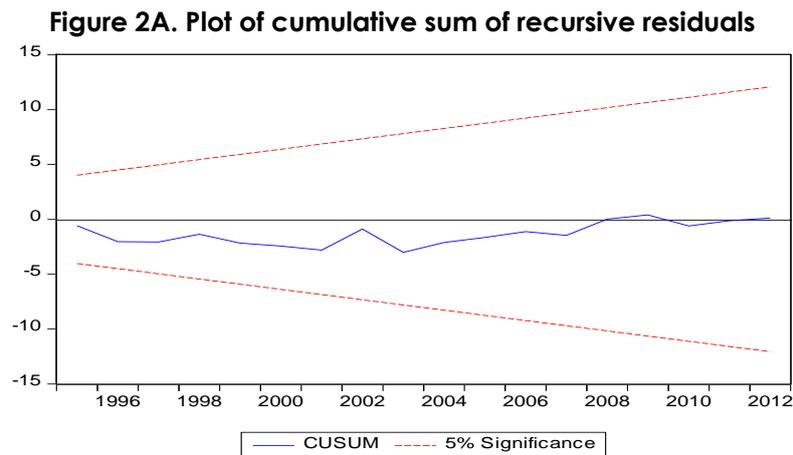
The plots of CUSUM and CUSMSQ both lie between the critical bounds at the 5% significance level, an evidence that the model is structurally stable and could be relied upon to formulate policies that are aimed at affecting the behavior of the country's non-oil exports in a desired direction.

4.5.   Granger Causality Test

The study investigates the relationship between non-oil oil exports, non-oil FDI and the other variables taken on board in our analysis, using the pairwise Granger causality test since the variables are all I(1) as revealed by the ADF test

for unit roots reported earlier. Being a VAR based causality test, the lag order of the VAR was first determined using appropriate lag order selection criteria. The result of the lag order selection is presented in Table A2 in the Appendix. The results clearly show that the appropriate lag length of the VAR is 1 as indicated by the SIC which is corroborated by the FPE and HQ lag order selection criteria. On the basis of this, in conducting the pairwise Granger causality test, the study uses lag length of 1. The outcome of the causality test is presented in Table A3 in the Appendix.

The results show bidirectional causality between real GDP and non-oil export performance. The causality that runs from real GDP to non-oil export performance is, however, more statistically significant, implying that economic growth is a significant predictor of the performance of Nigeria's non-oil export, and that improvement in non-oil export performance in turn positively affects the country's economic growth in the long-run. Furthermore, detect the existence of unidirectional causality between commercial bank loans to agriculture and manufacturing and non-oil export performance, with the direction of causality running from bank loans to non-oil export performance. This signifies that commercial bank loans and advances to Nigeria's agricultural and manufacturing sub-sectors is a predictor of the country's non-oil export performance. While we do not find any evidence to support the existence of a direct causal relationship between domestic investment and non-oil export performance, we find, however, the existence of a unidirectional causality between domestic investment and real GDP with real GDP in turn Granger causing non-oil export performance. No causal relationship is detected between non-oil FDI and real GDP. Furthermore, the study finds no causal relationship between non-oil FDI and non-oil export performance. These empirical findings suggest that domestic investment is the main determinant of the performance of Nigeria's non-oil exports.

5.   RECOMMENDATIONS FOR POLICY AND CONCLUSION

5.1.   Recommendations for Policy

 Based on the empirical results, the following are recommended for policy consideration.
  i.   The positive and significant effect of domestic investment on the performance of non-oil export calls for effort by the government to encourage private sector investment in the non oil sector of the economy. This could be achieved through favourable tax regimes, reduction in lending interest rate for operators in the non-oil sector, reduction in export duties, reducing the cost of registering business and granting licenses, etc), beefing up internal security, targeting favourable

interest rates, designing and implementing policies that are favourable to investment, as well as implementing policies that are aimed at encouraging investment in the non-oil sector of the economy.

ii.   The observation that trade openness positively affects non-oil export performance in the short run calls for increased but cautious liberalization of trade. However, care must be taken to protect those sectors of the economy producing the nation's non-oil exports, especially the agricultural and manufacturing sub-sectors. This could be achieved by putting in place measures that favour the importation of such productive inputs as raw materials and technological know-how that support production for export. This could be, for example, by way of reducing the tariffs on imported industrial raw materials and technologies and imposing higher tariffs on imported finished goods. This should, however, be done cautiously to avoid the possibility of retaliatory tariffs by trading partners.

iii.   The finding with respect to the exchange rate variable suggests the need for policies that are aimed at mitigating the impact of the depreciation of the local currency on the economy as it has the potential to adversely affect production for domestic consumption and for export.

iv.   The observed unidirectional causality running from commercial bank loans and advances to the agricultural and manufacturing sub-sectors suggests that increases in loans and advances to the sub-sectors have the potential to boost their export potentials and thus enhance their contribution to GDP. To this end, the government, through the monetary authority could direct commercial banks to lend more to these sub-sectors of the economy at favourable interest rates.

v.   The finding that real GDP positively and significantly affects the country's non-oil export performance calls for expansion of the productive base of the economy to boost the country's output of goods and services. This can be achieved through government incentives to players in the non-oil sector such as reduction in tax rates, increased patronage by the government of locally made goods and services, investment in research and development (R&D), reducing the cost of doing business in the country through the development and improvement of infrastructure, especially power, with the ultimate objective of encouraging economic agents to invest in the sector.

vi.   In striving to boost the country's export performance, it is important that government, acting through the Nigerian Export Promotion Council (NEPC) takes steps towards identifying markets where the country's export commodities are needed and then make conscious and determined efforts to add value, through processing to the country's

export commodities. Doing this could be helpful in boosting the country's earnings from non-oil exports.

5.2. Conclusion

The study has relied on quantitative tools of cointegration, error correction mechanism and Granger causality test to investigate the effects of non-oil foreign direct investment (FDI) on the performance of Nigeria's non-oil export, in the sample period 1981-2012. The analysis shows that the Vent for Surplus theory of trade is empirically valid in the Nigerian economy, as evidenced by the finding of a significant positive relationship between real GDP and non-oil export performance. It also finds that FDI adversely affects non-oil export performance in the short-run in a significant way. The long-run effect is not statistically significant. The paper argues that the inflow of FDI to Nigeria's non-oil agricultural and manufacturing sub-sectors was, in all likelihood, not aimed at raising the level of non-oil export *per se*, but at taking advantage of the large market that exists for agricultural and manufactured products in the domestic economy with a view to maximizing returns on investment. The findings that the short and long-run effects of domestic investment on the performance of Nigeria's non-oil export are positive and statistically significant suggest that domestic investment holds to the key to the growth of Nigeria's non-oil exports. While the study finds that trade openness impacts positively on non-oil export performance in the short-run, it find the impact of currency depreciation to be negative in both the short- and long-run.

In conclusion, as the answer to the research questions raised in the study, foreign direct investment inflow into Nigeria's agricultural and manufacturing sub-sectors inhibits the country's non-oil export performance. The evidence based policy recommendations include, *inter alia,* increase in domestic investment since this is a positive and significant determinant of the performance of the country's non-oil exports, granting of export incentives, and reduction of tariffs on imported industrial inputs (raw materials and technological know-how) needed for domestic production. Other recommendations include the need for design and implementation of appropriate investment promotion strategies, greater but cautious liberalization of the economy, prevention of excessive depreciation of the national currency through government intervention in the foreign exchange market when the need arises, increased loans and advances to the agricultural and manufacturing sub-sectors, the major sub-sectors that account for a significant share of the country's export basket, which is narrow and shallow in the first place.

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APPENDIX

Table A1. Estimated ARDL Model

Dependent Variable: LOG(NOXPERF)
Method: ARDL
Date: 09/10/16   Time: 21:37
Sample (adjusted): 1983 2012
Included observations: 30 after adjustments
Maximum dependent lags: 2 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (2 lags, automatic): LOG(NOFR) LOG(RGDP)
    LOG(TOPEN) LOG(INVR) LOG(EXRT)
Fixed regressors: C
Number of models evalualted: 486
Selected Model: ARDL(1, 0, 0, 2, 2, 0)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LOG(NOXPERF(-1))	0.300836	0.145226	2.071502	0.0522
LOG(NOFR)	-0.334878	0.226788	-1.476614	0.1562
LOG(RGDP)	2.115353	0.495780	4.266718	0.0004
LOG(TOPEN)	0.728881	0.284839	2.558920	0.0192
LOG(TOPEN(-1))	-0.399108	0.276759	-1.442079	0.1656
LOG(TOPEN(-2))	-0.619838	0.269341	-2.301314	0.0329
LOG(INVR)	0.310202	0.299096	1.037133	0.3127
LOG(INVR(-1))	0.196589	0.318977	0.616313	0.5450
LOG(INVR(-2))	-0.666924	0.273521	-2.438295	0.0247
LOG(EXRT)	-0.330882	0.137268	-2.410485	0.0262
C	-22.75941	5.618395	-4.050874	0.0007

R-squared	0.874450	Mean dependent var		-0.273278
Adjusted R-squared	0.808371	S.D. dependent var		0.647255
S.E. of regression	0.283338	Akaike info criterion		0.592226
Sum squared resid	1.525333	Schwarz criterion		1.105998
Log likelihood	2.116614	Hannan-Quinn criter.		0.756586
F-statistic	13.23344	Durbin-Watson stat		2.413362
Prob(F-statistic)	0.000001			

*Note: p-values and any subsequent tests do not account for model
    selection.

Table A2. VAR Lag Order Selection Criteria

Endogenous variables: LOG(NOXPERF) LOG(NOFDI) LOG(INVR) LOG(RGDP)
LOG(TOPEN) LOG(CBLAM) LOG(EXRT)
Exogenous variables: C
Date: 09/15/16   Time: 01:50
Sample: 1981
2012
Included observations: 30

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-55.36232	NA	1.51e-07	4.157488	4.484434	4.262081
1	119.8003	256.9051*	3.68e-11*	-4.253351	-1.637782*	-3.416608*
2	170.7726	50.97233	5.86e-11	-4.384839*	0.519352	-2.815947

 * indicates lag order selected by the
criterion
 LR: sequential modified LR test statistic (each test at
5% level)
 FPE: Final prediction error
 AIC: Akaike information
criterion
 SC: Schwarz information
criterion
 HQ: Hannan-Quinn information criterion

Table A3. Pairwise Granger Causality Tests

Date: 09/15/16   Time: 01:54

Sample: 1981 2012

Lags: 1

Null Hypothesis:	Obs	F-Statistic	Prob.
LOG(NOFDI) does not Granger Cause LOG(NOXPERF)	31	1.06121	0.3118
LOG(NOXPERF) does not Granger Cause LOG(NOFDI)		0.06656	0.7983
LOG(INVR) does not Granger Cause LOG(NOXPERF)	31	0.24632	0.6236
LOG(NOXPERF) does not Granger Cause LOG(INVR)		1.53876	0.2251
LOG(RGDP) does not Granger Cause LOG(NOXPERF)	31	4.45519	0.0439
LOG(NOXPERF) does not Granger Cause LOG(RGDP)		3.32744	0.0788
LOG(TOPEN) does not Granger Cause LOG(NOXPERF)	31	0.00080	0.9777
LOG(NOXPERF) does not Granger Cause LOG(TOPEN)		1.68001	0.2055
LOG(CBLAM) does not Granger Cause LOG(NOXPERF)	31	3.41234	0.0753
LOG(NOXPERF) does not Granger Cause LOG(CBLAM)		0.52300	0.4756
LOG(EXRT) does not Granger Cause LOG(NOXPERF)	31	2.78317	0.1064
LOG(NOXPERF) does not Granger Cause LOG(EXRT)		1.14580	0.2936
LOG(INVR) does not Granger Cause LOG(NOFDI)	31	1.97193	0.1712
LOG(NOFDI) does not Granger Cause LOG(INVR)		0.59628	0.4465
LOG(RGDP) does not Granger Cause LOG(NOFDI)	31	0.04517	0.8332
LOG(NOFDI) does not Granger Cause LOG(RGDP)		1.37318	0.2511
LOG(TOPEN) does not Granger Cause LOG(NOFDI)	31	1.34068	0.2567
LOG(NOFDI) does not Granger Cause LOG(TOPEN)		2.31958	0.1390
LOG(CBLAM) does not Granger Cause LOG(NOFDI)	31	1.18471	0.2857
LOG(NOFDI) does not Granger Cause LOG(CBLAM)		0.06537	0.8001
LOG(EXRT) does not Granger Cause LOG(NOFDI)	31	3.40167	0.0757
LOG(NOFDI) does not Granger Cause LOG(EXRT)		0.06284	0.8039
LOG(RGDP) does not Granger Cause LOG(INVR)	31	0.89729	0.3516
LOG(INVR) does not Granger Cause LOG(RGDP)		5.80122	0.0228

FINANCIAL SYSTEM DEVELOPMENT AND ECONOMIC GROWTH IN SUB-SAHARAN AFRICA

By Festus. O. Egwaikhide[1][a]* , Olusegun Omisakin[b], Abimbola Oyinlola[a] and Oluwatosin Adeniyi[a]

Abstract
This paper contributes to the age-old debate on the link between financial development and economic growth by examining the role of monetary policy. There is a possibility that monetary policy enhances financial system performance with attendant impact on growth. To unveil this influence, this paper employs fixed effects and System GMM on data from 28 sub-Saharan African countries over the period 1996 to 2014. Results from the baseline estimation using fixed effects indicate that financial development indicators are negatively and significantly associated with growth for two of the three measures used (LGDP and PGDP), while money growth is positively related albeit insignificantly. The results largely remain the same on interaction with money growth. The coefficients of the interactive terms though largely negative are, however, not significant. The results from System GMM presents a different outcome. First, all measures of financial development turn out positive (except BBD) and insignificant. Financial development equally turns negative but insignificant after interacting with money growth. Overall, monetary policy measures, together with their interactions with financial development indicators, show up as weak growth predictors if not dampening, suggestive of the plausible independence of the nexus on the actions of monetary authorities in these countries.

1. INTRODUCTION

Understanding the role of financial development in the process of economic growth has been the focus of vast studies in the finance literature. Earlier studies have argued for finance as the engine of growth [Schumpeter (1911); McKinnon (1973); Shaw (1973); and Levine (1997)]. Yet, this role has become controversial because of the contrasting empirical findings. Four distinctive arguments have emerged. First, findings have shown that finance lead to growth. The category of studies that follow this line of thinking are classified as supply-led hypothesis [Schumpeter (1911), McKinnon (1973), Shaw (1973)]. The second category is studies which posit that finance is a

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product of the growth process; that is, growth leads to finance. This category is often referred to as demand-led hypothesis [See De Gregorio and Guidotti (1995)]. A third argument submits that a feedback relationship exists between finance and growth [See Mohammed (2008)]; while the fourth category downplays the "overstressed" role of finance in the growth process. Specifically, this strand argues that finance has no significant impact on growth [See Anderson and Tarp (2003)]. These contrasting views have given rise to a lengthy debate about growth effects of financial sector development in the literature. Several explanations ranging from the role of intermediate variables, financial development measurement concerns and data quality have been proffered.

Studies on sub-Saharan Africa have employed different methods of analysis to understand the relationship. Some studies employ vector autoregressive model and come up with mixed results [See for instance, Ghirmay (2004)]. The shortcomings and mixed results of different methodologies have brought to bear the need for new insights to clarify the relationship between finance and growth. Hence, some pundits argue for the role of some other intermediate variables and threshold analysis to provide better insights into the link [See Adeniyi *et al.* (2015)] eliciting some interesting results.

An elaborate review of evidence documented in Levine (2005) suggests that the bourgeoning mass of empirical evidence eliciting different methods of analysis and data sets produces results that are consistently in support of supply-led hypothesis. Specifically, economies with better-developed financial systems tend to grow faster. In addition, better-functioning financial systems accentuate access to external capital, easing financial liquidity of firms and thereby enhancing the growth potential of the firm. The need to ease this constraint hinges largely on financial liquidity in the system. An important domestic instrument often used by government to moderate liquidity is monetary policy. The stock and growth of money supply in an economy alter the dynamics of a gamut of variables that could influence flows of capital and performance of the financial system. For instance, the growth of money could influence the dynamics of interest rate and exchange rate with subsequent impact on returns on investments and capital inflows. The extent to which monetary policy has defined the finance-growth nexus, especially in Sub-Saharan Africa, remains an area that pundits have not beamed their searchlight upon. This is therefore the gap which this study seeks to fill.

Following this introduction, Section 2 undertakes a survey of is literature while section 3 highlights the methodology and data issues. Discussion of the results is in section 4, while the fifth and final section contains the conclusion.

2.   REVIEW OF THE LITERATURE

Economic theory provides little guidance on the precise nature of the relationship between financial development and economic growth. Schumpeter (1911) initially argues that improvements in the quality and quantity of financial services – such as risk pooling, efficient project identification, better corporate governance and better firm monitoring, among others – would be growth promoting. Mckinnon (1973) and Shaw (1973) present further refinements to this idea with the key message that the repressed financial systems which are prevalent at the time need to be made freer. According to them, interest rate ceilings and directed credit policies constitute significant drag on growth. At the other side of the divide, the notion that *where enterprise leads, finance follows* hit the limelight in the wake of Robinson's (1952) seminal publication. The main message is that the process of financial development is a necessary fallout of the broader dynamics of economic growth. Patrick (1966) provides a synthesis in the spirit of the chicken and egg perspective. While Patrick argues that causation could run from either finance to growth or from economic growth to financial sector development, the economy's stage of development is essentially influential in determining the exact causal sequence. He explaines that in the earlier stages of development, supply-leading hypothesis holds dominantly, while this order is reversed as the economy attains advanced levels of development.

On the empirical side, the evidence especially from single country assessments is mixed. For instance, Chang and Caudill (2005) find evidence of finance driven growth using Taiwanese data covering the three plus decades spanning 1962 to 1998. In corroboration of this also is the study by Acaravci *et al.* (2007) for Turkey covering a shorter horizon, viz 1986-2006. For the flip demand-following hypothesis, Demetriades and Hussein (1996) employ causality tests to arrive at partitioned results. While about half of the 16 countries in their sample report bidirectional causality, the studies for most of the remaining countries in SSA show growth-led financial development.

However, cross-sectional studies relatively appear to be the exception in this literature particularly for SSA economies. Nonetheless, a key study found with this orientation is highlighted. Precisely, Ogun (1986) using data for 20 African countries over 1969-1983 finds insignificant coefficients for the included financial intermediation measures, implying no meaningful influence on economic growth. The key downside with such investigations, as also with single country studies, is that the estimates obtained could be biased as an upshot of the far less number of available observations. In some cases, this concern is further accentuated by the appreciable loss of degrees of freedom typical of the adopted lag consuming time-series methods, such as vector autoregression

(VAR), used. Hence, except the cross-sectional dimension is significantly large estimates are prone to comparable bias fears.

While panel data studies are not immune to concerns, they attract some merits. First, the information gap reflecting loss in degrees of freedom loss is circumvented by a larger pool of useful observations. Second, the enhanced data pool implies that coefficients and the corresponding reliability diagnostics are far more credible. Finally, the allure of looking at economic phenomena both the snapshot across countries and within given countries over time is irresistible. Therefore, the study turns next to panel studies on the finance-growth nexus albeit those with sole focus on SSA economies. The foregoing discussions follow the direction of arguments along the supply-demand hypotheses in the empirical casuality analysis earlier alluded to.[2]

First, on the supply-led hypothesis, an efficient financial sector is thought to be a conduit through which growth improvements can be achieved. In support of this proposition, Seck and El Nil (1993), conclude using data on 21 African countries that financial system sophistication – proxied by the real interest rate – significantly and positively impacts on economic growth. Also, Charlier and Oguie (2002) – taking a relatively larger time series and cross-section on board – pitch their tent with causality running in the finance-growth direction. Again, Allen and Ndikumana's (2000) robust analysis deploy 3 indicators of financial deepening alongside an index constructed using these measures. They find, for their sample of 8 African countries, a positive and statistically significant effect of finance on the growth of real GDP per capita.

Meanwhile, the theoretical argument for a plausible reversal of the foregoing causal ordering has not been a closed case either. Robinson's (1952) opinion that growth on a fairly sustained basis is a forerunner of demand for more financial services birth generates a flurry of empirical attempts favourably disposed to her opposing view. While the results do not appear as convincing, particularly true if judgment is based solely on the number of published works, Agbetsiafa (2003) makes a significant contribution to the demand-following hypothesis using data on SSA countries. Finally, a more recent study by Fowowe (2011) tilts towards Patrick's (1966) theoretical exposition on bi-directionality. Fowowe's paper engages the finance-growth debate using annual time-series data (1975-2005) observed on 17 SSA countries. By employing heterogenous panel cointegration and causality tests, the paper finds that causality runs either way between financial development and economic growth irrespective of how the former is gauged. The conclusion, in his view, therefore is one of

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[2] Akinlo and Egbetunde (2010) also classified studies along these distinct lines

complementarity between the real and financial sectors in the selected SSA economies.

The discussion so far buttresses the depth and width of not only the theoretical but also the empirical finance-growth literature. However, a key question which has received far less attention is "What are the channels through which financial development exerts its influence, if any, on economic growth?" The paper argues specifically for a role for monetary policy stance as an intervening factor and thus seeks to add value to the literature on the subject for Sub-Saharan Africa.

3.   METHODOLOGY AND DATA ISSUES

The study proceeds with the standard tests for unit roots and cointegration in panel settings for the usual statistical inference reasons. It then shows the estimable model as well as offer an in-depth exposition of one of the estimation techniques – the Generalized Method of Moments (GMM) – used for the estimates. Finally, matters in the domain of data description, financial index construction and sources of data are equally treated.

The Im *et al.* (2003) and Maddala and Wu (1999) panel stationarity tests are first conducted to avoid reporting coefficients that are devoid of economic and statistical meaning.[3] Thereafter, the class of panel cointegration tests suggested by Pedroni (1999) follows. This is with a view to ascertaining the existence of an equilibrium finance-growth relationship.

The fixed effect model (FEM) is then used to gauge both the impact of financial sector deepening on economic growth and the intervening influence of monetary policy actions in the SSA sample. The major drawbacks to FEM have included fears about endogeneity and possible doses of bias in regression estimates. Therefore, to circumvent the influence of potential endogeneity, mainly between finance and growth, the GMM estimator is used in the spirit of Arellano and Bond (1991), Blundell and Bond (1998), among others. The basic intuition is that correlations between the lagged regression and the regressors, $\{E(\Delta y_{i,t-1}, \Delta x_{i,t}) \neq 0\}$ on one hand, and more importantly, that between the one-period backcast of the dependent variable and the error term, $\{E(\Delta y_{i,t-1}, \Delta \varepsilon_{i,t}) \neq 0\}$, on the other, could lead to bias in regression estimates.

These authors, therefore, suggest the use of instruments, while taking account of the available moment restrictions. They propose moment conditions of the following form:

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[3] The study deliberately refrains from grinding out the mechanics of these panel stationarity tests as they are essentially well documented in the originating papers namely Im et al. (2003) and Maddala and Wu (1999). For details in an empirical set up, Oyinlola et al. (2011) present an insightful discussion.

$$\mathrm{E}\big\{y_{i,t-s},\big(\Delta\varepsilon_{i,t}\big)\,\big\}=0,\ for\ \ s\geq1;t=2,3,\ldots,T \tag{1}$$

$$\mathrm{E}\big\{x_{i,t-s},\big(\Delta\varepsilon_{i,t}\big)\,\big\}=0, for\ \ s\geq1;t=2,3,\ldots,T \tag{2}$$

These representations implicitly indicate that the error terms ($\varepsilon_{i,t}$) are not auto-correlated and the explanatory variables are orthogonal (weakly exogenous or independent).[4] In terms of the estimation in a GMM world *per se*, endogenous variables are instrumented by lags from at least two periods, while exogenous factors are instrumented with lags beginning from one period. Moreover, to ascertain the validity of the key assumptions underlying the consistency of this GMM estimator, two important diagnostics are typically deployed. One, is the Lagrange Multiplier (LM) test to ensure that second-order serial correlation is absent. Two, a Sargan test of over-identifying restrictions which gauges the overall validity of the instrument set is also typical. Both tests are conventionally conducted and the statistics they return are reported alongside the concerned regressions.

Ultimately, the empirical modeling framework adopted in the study follows, albeit, with key modifications, the ones in Beck *et al.* (2000), Fowowe (2008) and Rousseau and Wachtel (2011). Leaning on these papers the study comes up with an implicit model of the form:

$$GRW = f\big(FDV, EXS\big) \tag{3}$$

Where GRW is the proxy for economic growth as measured by the real GDP per capita, FDV connotes the set of financial development indicators – bank-based, market-based and their composite index – and EXS is the vector of additional control variables including the monetary policy instruments are incorporated in the analysis.

Alternatively, this time in panel format, the mathematical model in equation (3) is :

$$GRW_{i,t} = \varphi_0 + \varphi_t FDV_{i,t} + \varphi_k EXS_{ki,t} + \varepsilon_{i,t} \tag{4}$$

---

[4] For the purpose of illustration, with s = 1 and t = 3 for example, $E\big\{y_{i,2},\big(\Delta\varepsilon_3\big)\big\}=0$, $for\ \ s\geq1;t=2,3,\ldots,T$ implying that explanatory factors are assumed unrelated to the future realisations of the disturbance term.

The only additions, of course, are ε, i and t which represent the spherical error components and the cross-section and time indexes respectively. Also k = 1,…,n stands for the N additional correlates of economic growth.

The explicit specification of the estimating equation is given below as:

$$GRW_{i,t} = \psi_0 + \psi_1 INV_{i,t} + \psi_2 OPN_{i,t} + \psi_3 GVE_{i,t} + \psi_4 FDV_{i,t} + \psi_5 MPD_{i,t} + \upsilon_{i,t} \qquad (5)$$

Where INV is the investment to GDP ratio, OPN is the degree of trade openness, GVE denotes the share of government expenditures in GDP and MPD is the acronym for the two monetary policy stance indicators namely money supply growth and the real interest rate. υ is the error term.

Furthermore, the model with interaction terms deployed to weigh the influence of monetary policy decisions on the finance-growth nexus is expressed as follows:

$$GRW_{i,t} = \psi_0 + \psi_1 INV_{i,t} + \psi_2 OPN_{i,t} + \psi_3 GVE_{i,t} + \psi_4 FDV_{i,t} + \psi_5 MPD_{i,t} + \psi_6 \left(FDV * MPD\right)_{i,t} + \upsilon_{i,t} \quad (6)$$

To obtain estimates from equations (5) and (6), the study uses the fixed effects that corrects for possible influence of important omitted variables. To complement the fixed effects and also mitigate the undesirable consequences of ignored endogeneity, the system-GMM of Blundell and Bond (1998)[5] is used.

With regard to the financial development indicators, and relying on bank-based measures, in line with Adeniyi *et al.* (2012), the study elects to use three alternatives, namely, the ratio of M3/GDP, domestic credit to the private sector as a share of GDP and total domestic credit provided by the banking sector as a percentage of GDP. These indicators of financial development are used in order to capture the diverse aspects of bank-denominated financial sector development. The ratio of M3/GDP is the total liquid liabilities of the financial system by broadly including key financial institutions such as the central bank, deposit money banks and other non-bank financial institutions (NBFIs)as a proportion of GDP. It is thus an encompassing measure of the overall size of the financial sector. The second indicator, domestic credit to the private sector, distinguishes between the end users of the claims of financial intermediaries. Therefore, it includes only the claims on the private sector. Total banking sector credit as a percentage of GDP, the third measure, excludes non-bank credit to the private sector and may be less comprehensive than the second measure (claims on the private sector as a ratio of GDP). The two stock market variables are market capitalization as a share of GDP and total value traded as a

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[5] The bulk of the earlier algebraic representation is largely from this widely cited panel-theoretic contribution.

percentage of GDP. While the latter equals the value of the trade in domestic equities on the stock exchange divided by GDP, the former scales the value of these equities relative to -the size of the economy- GDP.

Moreover, in order to address the stock-flow problem, the study aligns with Calderon and Liu (2003) by using deflated financial indicators in the now customary fashion.[6] The composite index of financial sector development is then constructed á la Burnside and Dollar (2000).[7] The rationale for this stems from the well-known difficulty with measuring financial development. To avert the foregoing, an index which summarises the combined information across the major constituents is first computed and later introduced in the empirical framework. The analysis covers the period 1996-2014, dictated by data availability. An Update of Beck *et al.*'s (2011) financial Indicators database provides the data on the bank- and stock market- based indicators, while the World Bank's *World Development Indicators* (WDI) 2012 and 2015 databases are the sources for data on the other variables.

4.   RESULTS AND DISCUSSION

In this section the results of the estimation of the econometric models of finance and growth are presented and then discussed. The findings on both the basic and augmented models of the finance-growth nexus are presented. This is done, in turn, for both the fixed effects (FE) and system generalized method of moments (SYS-GMM) estimators. In Table 1, all financial development indicators appear to have negative growth effects. This impact is, however, somewhat weaker for total banking sector credit / total banking deposit ratio (BBD)[8] with respect to magnitude and it is statistically insignificant.

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[6] Following Calderon and Liu (2003), the formal expression for the deflation of our financial variables is given as:

$$FDV = \frac{\frac{1}{2}\left\{ FDV_t \middle/ CPI_t^e + FDV_{t-1} \middle/ CPI_{t-1}^e \right\}}{GDP_t \middle/ CPI_t^a}$$

where CPI[e] and CPI[a] represent the end-of-year and annual mean consumer price indices for each of the countries in our sample. GDP is the gross domestic product in local currency unit. To reiterate, we compute distinct FDV measures for both the three bank-based and the two market-based measures of financial development.

[7] The procedure for index construction, precise details can be looked-up in Burnside and Dollar (2000), used here weights each financial development variable according to the extent of their influence on economic growth.

[8] For ease of appreciation, the precise meanings of the acronyms used throughout this results section are detailed viz: BBD is total banking credit as a share of total bank deposit, PGDP is private sector credit to GDP ratio, LGDP represents total liquid liabilities to GDP ratio, while MPOL is used to designate the measures of monetary policy stance. It is noteworthy to reiterate that money growth is the alternative MPOL indicators deployed in this study.

Table 1: Fixed Effects (FE) Estimates

Variable	(1)	(2)	(3)	(4)	(5)	(6)
CONS	4.838(1.83)***	5.068 (2.07)**	5.497 (2.22)**	3.494 (1.26)	4.636 (1,.86)***	5.082(2.0 3)**
GEXP	-0.052(-2.07)**	-0.047(-1.89)***	-0.053(-2.13)**	-0.047(-1.88)***	-0.044(-1.78)***	-0.049(-1.99)**
INFL	-0.048(-1.81)***	-0.054(-2.05)**	-0.053(-2.01)**	-0.054(-2.02)**	-0.057(-2.16)**	-0.054(-2.04)**
INV	0.099(3.2 5)*	0.111(3.64)*	0.117(3.77)*	0.099(3.24)*	0.110(3.55)*	0.115(3.7 33)*
OPN	0.006(0.5 0)	0.014(1.23)	0.008(0.70)	0.006(0.55)	0.013(1.16)	0.006(0.5 7)
BBD	-0.007(-0.68)			0.001(0.08)		
LGDP		-0.065(-2.87)*			-0.066(-2.67)*	
PGDP			-0.089(-2.81)*			-0.096(-2.87)*
MPOL				0.053(1.28)	-0.014(0.48)	0.004(0.2 2)
BBD×MPOL				-0.0004(-0.83)		
LGDP× MPOL					-0.0003(0.2 6)	
PGDP×MPOL						0.001(0.9 7)
Diagnostic Tests						
R^2	0.048	0.012	0.015	0.058	0.018	0.022
Wald joint significance	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Number of Cross-sections	28	28	28	28	28	28
Number of Observations	532	532	532	532	532	532

Notes: The dependent variable is the growth of real GDP per capita. Figures in parentheses are t-ratios, while those in brackets are probability values. The t-ratios are computed with standard errors which are heteroscedasticity consistent. All estimates have been rounded to three decimal places. *,** and *** designate statistical significance at the 1,5 and 10 per cent levels in that order.

Also in Table 1, investment is positively linked to growth in Models (1) to (6) and statistically significant, with the weights in LGDP and PGDP considerably higher than BBD. Also, only LGDP and PGDP are statistically significant. Inflation, which proxies macroeconomic stability, is as expected, negatively associated with growth and statistically significant. More specifically, the negative influence is in the neigbourhood of some 0.048 to 0.054 decline in growth in response to a 1 per cent increase in BBD and LGDP in that order. Moreover, openness had both negative and positive growth impacts depending on the model, while government expenditure influences growth negatively with the former being insignificant correlates of economic growth and latter is statistically significant. Furthermore, the study devotes

the next paragraph to rationalizing the most striking finding of the study– the negative linkage between finance and growth.

At first blush, the evidence of a negative finance-growth correlation appears puzzling. However, it corroborates a few previous conclusions in the literature, notably those of de Gregorio and Guidotti (1995) and Ram (1999). The former explain their results as mirroring the influence of extreme exposure of the financial markets of the Latin American countries due to weak regulatory capacity and the perverse expectations that banks would be bailed out in the instance of any systemic risk. To sum up, therefore, de Gregorio and Guidotti submit that *"……. a high degree of financial intermediation in the sample of Latin American countries was often a sign of a fragile and overexposed financial system, rather than one that was efficiently allocating credit"*. In like fashion, for Ram (1999), the predominant finding using a sample of 95 countries is a miniscule or at best weakly negative association between financial sector development and the growth of real GDP per capita. This evidence is equally consistent with the study results, particularly noting that 17 out of the 28 selected countries in the present study are also considered in Ram's paper. He finds negative and significant relations in 11 economies, that is, about 65 per cent of cases. Taking the foregoing evidence together the study seems to suggest that undertaking financial liberalization, to deepen the financial system, when regulatory structures are and largely remain nascent, may constitute an important drag on growth.

Turning to the regressions with the money – growth matrix, still on Table 1, the FD measures retain their negative growth effects except BBD and they maintain the same structure of significance as explained above. The magnitudes of the estimates, compared to the counterparts in (1) to (3), equally decline in proportion except for BBD that indicates positive growth effect. This, for instance, is especially apt for PGDP with a decline from -0.089 to -0.096. While this might in part be driven by the incorporation of monetary policy stance, the monetary variable itself is both negatively and positively correlated with growth and insignificant in the model with LGDP as the preferred measure of financial development. Nevertheless, the result turns around for BBD as it impacts growth positively with the incorporation of monetary indicator. All interaction terms are statistically weightless with very small magnitudes. Again, as in the preceding regressions, the explanatory power of these interaction models is only slightly greater than that of the models without money growth suggesting that the weight of monetary policy is not much in affecting the linkage between finance and growth in the selected countries. Furthermore, the outcomes for inflation, investment and openness remain both quantitatively and qualitatively unaltered with the introduction of monetary policy and its interaction with financial development. Government spending continues to show a negative and significant growth effect.

Concerns about the biases emanating from the influence of potential endogenous regressors are rife in the empirical panel literature. System GMM is employed to

mitigate the effect of such endogeneity problems. Table 2 presents the results from the SYS-GMM estimations.

Table 2: System Generalised Method of Moments (SYS-GMM) Estimates

Variable	(1)	(2)	(3)	(4)	(5)	(6)
CONSTANT	-4.19 (-1.56)	-5.380 (-2.09)**	-6.355(-2.16)**	1.011(0.18)	-2.042 (-0.69)	-3.480(-1.05)
GEXP	0.044 (1.60)	0.037 (1.41)	0.045 (1.67)***	0.035 (1.23)	0.024 (0.81)	0.036(1.17)
INFL	0.120 (2.15)**	0.146 (2.80)*	0.137 (2.87)*	0.100(1.31)	0.045 (0.67)	0.058(0.83)
INV	0.156(2.08)*	0.179 (3.24)*	0.191 (3.12)*	0.102(1.20)	0.114 (1.50)	0.135(1.79)*
OPN	-0.009(-0.82)	-0.017 (-1.29)	-0.010 (-0.80)	-0.007 (-0.54)	-0.022 (-1.90)	-0.010(-0.92)
BBD	-0.012(-0.96)			-0.059(-1.46)		
LGDP		0.023(1.30)			-0.004 (-0.05)	
PGDP			0.016(1.21)			-0.063(-0.96)
MPOL				-0.254 (-1.39)	-0.025 (-0.18)	0.039(-0.58)
BBD×MPOL				0.004 (1.57)		
LGDP×MPOL					0.003(0.55)	
PGDP×MPOL						0.007(1.43)
Diagnostic Tests						
Sargan test	[0.506]	[0.590]	[0.565]	[0.814]	[0.703]	[0.740]
2nd Order auto-correlation test	[0.414]	[0.672]	[0.893]	[0.294]	[0.550]	[0.736]
Number of Cross-sections	28	28	28	28	28	28
Number of Observations	532	532	532	532	532	532

Notes: The dependent variable is the growth of real GDP per capita. Figures in parentheses are t-ratios, while those in brackets are probability values. The t ratios are computed with standard errors which are heteroscedasticity consistent. All estimates have been rounded to three decimal places. *,** and *** designate statistical significance at the 1,5 and 10 per cent levels in that order. The Sargan test has a null hypothesis that the set of instruments are valid. The serial correlation test has a null that second-order autocorrelation is absent from the residuals.

In the basic models, viz without interaction terms, the results are very much in dissimilarity with those in the first three columns of Table 1. First, the direction and statistical significance position have changed for LGDP and PGDP, they are now positive and statistically insignificant on growth. On juxtaposing the first and third regressions of Tables 1 and 2, the BBD retains its negative signs and its magnitude of influence declines slightly while PGDP is now positive and statistically insignificant reflecting 0.016 percent increase in growth. Inflation and government expenditure remain statistically significant but now impacted growth positively. Also, investment and openness retained their signs and still remain significant.

Dwelling on further analysis of results in Table 2, the study finds that introducing interaction terms yields a number of interesting results: the sign of the growth impact of BBD becomes negative and still appears statistically insignificant, suggesting a decrease in output of about 0.06 per cent in response to a 1 percentage point rise in total banking sector credit/total banking deposit ratio. LGDP and PGDP retain their directional effect but are now statistically insignificant. In terms of the indicator of monetary policy stance, the coefficients slightly change and remain insignificant in all regressions (that is (4) to (6)) but its interaction with FD is only statistically important in the latter one although with opposing signs except for PGDP under monetary policy interaction that now influences growth positively. Openness is now negative and remains insignificant in the model with PGDP, while investment is unaffected by the incorporation of monetary policy and its interaction with finance. With the interactions, government expenditure is now positively related to growth. The Sargan test of over-identifying restrictions and the second-order serial correlation test respectively suggest that instrument invalidity and second degree residual correlation are not binding constraints on the reliability of the reported estimates. Finally, a quick squaring of Tables 1 and 2 shows that controlling for endogeneity does not result in significant estimates for the FD measures on one hand but very importantly positive impact multipliers are obtained on the other hand once endogeneity is accounted for.

5.   CONCLUSION

This study, seeks to examine the connection between financial system development and economic growth in Sub-Saharan Africa (SSA). Beyond the admittedly controversial issues bordering on causality, the present study departs from the extant literature on the subject in SSA along a major line, namely, determining the likely influence of monetary policy on economic growth. Using annual time series data on 28 SSA countries in the period 1996 through 2014 and Fixed Effects estimation model as well as system Generalized Method of Moments estimators, the study presents these findings: One, there appears to be a fairly broad negative linkage between finance and economic growth in the sample. This submission proves largely robust to alternative definitions of financial development, the deployment of interaction terms as well as estimation techniques. Two, there seems to be little or no explicit role for monetary policy as an intervening factor in the finance-growth space. Monetary policy indicators, together with their interactions with financial development markers, post weak growth predictors. While the complexity of drawing policy implications from panel regressions is beyond doubt, the study briefly makes a few remarks on plausible policy lessons from the enquiry. One clear lesson is that one- size- fits-all type interventions are likely to have little usefulness in the selected SSA economies. Ultimately, getting a firmer grip on what works in each country

remains a necessary first step for a better appreciation of the role of financial development in the growth processes of these SSA economies.

These results are, however, tentative, having regard to the limitations in the proxies used for variables on both sides of the finance – growth divide. Besides, measurement problems loom large even for the variables used for the sample of 28 countries in SSA brought on board. Even so, the study arguably blazes a trail in focusing on the extent to which monetary policy has influenced the finance-growth nexus, especially in sub-saharan Africa. It thus represents a value adding contribution to the debate on the subject in extant literature. Future research, however, should be targeted at determining country specific mechanisms through which finance influences growth.

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Appendix

Table A: List of countries included in the study sample

1. Benin	11. Cote'd'Ivoire	20. Mozambique
2. Botswana	12. Ethiopia	21. Niger
3. Burkina Faso	13. Gabon	22. Senegal
4. Burundi	14. Ghana	23. Seychelles
5. Cameroon	15. Kenya	24. South Africa
6. Cape Verde	16. Madagascar	25. Tanzania
7. Central African Republic	17. Malawi	26. Togo
8. Chad	18. Mali	27. Uganda
9. Congo Republic	19. Mauritius	28. Zambia
10. Nigeria		

NIGERIA'S EXTERNAL DEBT OVERHANG: AN ECONOMETRIC INVESTIGATION

By Milton Iyoha[1] , Clement Atewe Ighodaro, and   Mrs Blessing Oligbi

Abstract

This study undertakes an extensive econometric analysis of Nigeria's debt overhang problem. In the process, it attempts to empirically ascertain if there is a debt Laffer curve for Nigeria. Quarterly data for the period 1981Q1 to 2013Q4, obtained from the Central Bank of Nigeria, are used in the econometric investigation. Within this period, four different estimations are carried out with the use of OLS (and the Cochrane –Orcutt method where there are established cases of auto-correlation in the residuals). It is found that, overall, external debt has not positively contributed to economic growth in Nigeria and that there is no discernable evidence for the existence of a smooth inverted U-shaped debt Laffer curve in Nigeria. In sum, too much external debt is bad for economic growth in Nigeria; hence any externally borrowed funds should be judiciously utilized in order to benefit the economy.

Key words: Economic growth, external debt overhang, debt Laffer curve

Jel codes: H6. H63, H68, H72, H72, H30

1.   INTRODUCTION

Poor economic growth in most developing economies, particularly in sub-Saharan Africa, results from both internal and external factors. Some of the internal factors are linked to domestic macroeconomic policy weaknesses which often lead to inflation, unemployment, rising fiscal deficits and capital flight. The external factor results mainly from an increasingly hostile international economic environment characterized by low and falling primary commodity prices, declining terms of trade, soaring global interest rates, rising protectionism in the industrialized countries, and dwindling capital flows into African countries that have resulted in mounting current account and balance-of-payments deficits, as well as an escalating external debt stock (Iyoha, 1999).

In Nigeria, the issue of external debt dates back to the colonial period when a foreign loan was taken to complement the internally generated revenue for developmental purposes (Adepoju, Salau and Obayelu, 2007). According to Omoruyi (2010), between 1958 and 1977, debts contracted were the concessional debts from bilateral and multilateral sources. Such debts -- usually having longer repayment periods and lower interest rates -- constituted about 78.5 percent of the total debt stock. The oil prices collapsed between 1981 and

1983 leading to the devaluation of the naira and increased inflation (which was more than 20 percent) that discouraged foreign direct investment. The increased capital flight led firms to build up large inventories of imports often with over-invoicing or under-pricing of exports with the difference placed on deposits abroad.

Most of this borrowing consisted of short-term trade credits and was done by the States with explicit guarantees by the federal government through the federal export credit agency. Between 1982 and 1983, trade arrears were accumulated for the first time with much of the new debt not reflected in the new lending by the country. Nigeria' arrears on external debt was rescheduled in successive agreements with the London Club in 1984, 1987, 1989, and 1992; and the Paris Club in 1986, 1989, 1991, and 2000 (Budina, Pang and Wijnbergen, 2006). Despite several debt rescheduling in the 1980s and early l990s, Nigeria's debt overhang continued to dampen investment. In October, 2005, Nigeria external debt was reduced from 35 billion dollars to five billion dollars in the debt reduction deal with the Paris Club. This brought a break-through external debt relief to Nigeria.

Soludo (2003) is of the opinion that countries borrow for macroeconomic reasons such as meeting higher investment and higher consumption like education and health. According to him, another reason for borrowing is to finance transitory balance of payments deficits or to circumvent hard budget constraints. This means that a country involves in debt in order to boost economic growth and reduce poverty. Once an initial stock of debt grows to a certain threshold, servicing them becomes a burden, and countries find themselves on the wrong side of the debt-laffer curve, with debt crowding out investment and growth (Soludo, 2003). Sachs (1989) was the first to introduce the debt Laffer, concluding that borrowing too much may lead to inefficiency.

Recent literature like Sulaiman and Azeez (2012), Ajayi and Oke (2012), Egbetunde (2012), Erhieyovwe and Onovwoakpomma (2013), Ibi and Aganyi (2015), Mba, Agu and Umunna (2016) and Udeh, Ugwu and Onwuka (2016) have linked external debt to growth. With mixed results though, Iyoha (2000) concludes that debt overhang theory is valid for Nigeria, to the best of authors' knowledge, no specific study has investigated the existence of a smooth inverted U-shaped debt Laffer curve for Nigeria. The current paper attempts to fill this identified gap by examining if there is a debt Laffer curve with respect to the nexus between external debt and economic growth in Nigeria. Following section I, section II provides the stylized facts on external debt in Nigeria. Section III dwells on literature review while section IV examines conceptual framework of the study. Section V provides the methodology, model specification and regression results. Section VI provides the summary and conclusion.

II.   STYLIZED FACTS ON EXTERNAL IN NIGERIA

The origin of the external debt in Nigeria dates back to 1958 when a loan of US$28.0 million was contracted from the World Bank for railway construction. This debt did not pose a serious burden because interest charged on public loans was relatively small, averaging N3.2 million per annum and representing 0.2 per cent of GDP (Obadan, 2003). Between 1958 and 1977, debts contracted were concessional debts from bilateral and multilateral sources with longer repayment periods. This is because the country had little need for much external borrowing (Adepoju, Salau and Obayelu, 2007).

In the period 1973 to 1976, Nigeria had a surfeit of oil receipts due to the oil boom. However, between 1977/1978 there was a fall in world oil prices. As a result, the country's receipts from oil dwindled, leading to balance-of-payments problem as well as difficulties in project financing. As a result, it became necessary for the Federal government to correct the balance-of-payment difficulties and finance projects. This led to the first major borrowing of US$1 billion referred to as the "jumbo loan" from the international capital market in 1978. In 1979, the oil market recovered due to increase in the price of oil in the international market. The economy started to bounce back again and to experience excessive importation, over-invoicing of imports and under-invoicing of exports.

In 1982, there was another collapse in world oil prices. This caused foreign exchange to decline rapidly and there was significant deficit in government financing. Between 1983 and 1988, Nigeria found herself not being able to settle her import bills which resulted in the accumulation of trade arrears amounting to about US$9.8 billion. The insured component of the total sum was US$2.4 billion while the uninsured was US$7.4 billion (Iyoha and Ighodaro, 2014). Specifically, according to Mbanasor and Okere (2014), Nigeria started to incur payments arrears from 1982 that increased from N1, 981.7 million in that year to N12,279.7 million at the end of 1986. Total external debt outstanding at the end of 1986 was N41,452.4 million or US$18,631.3 million, which amounted to over 57.5 percent of the GDP for that year.

Between 1985 and 1990, the total stock of external debt had risen to US$33.1 billion (Iyoha and Ighodaro, 2013). Much of the external debt of Nigeria was owed to fifteen creditor countries of the Paris Club (Adebusola, Salau and Obayelu, 2007). As at December 2000, Nigeria's debt stock amounted to about 75 percent of GDP and about 180 percent of export earnings. In the same year, debt service due was about US$3.0 billion or 14.5 percent of export earnings and US$1.9 billion was used for debt servicing. This translated to about 4 times the

federal government budgetary allocation to education and about 12 times the allocation to health while in 2001 debt service payment was US$2.13 billion which amounted to 6 times the federal government's budgetary allocation to education and 17 times the allocation to health for 2001 (Adebusola, Salau and Obayelu, 2007).

Nigeria mounted a relentless campaign for debt relief at the return to democratic governance in 1999. Arising largely from a successful debt relief agreement with the Paris Club of creditors, Nigeria's external debt stock plummeted from $35.9 billion in 2004 to approximately $5.5 billion in 2005 after a comprehensive debt relief package on its $30.4 billion Paris Club debt. Okonjo-Iweala and Osafo-Kwaako (2007: 11), aver that "...the unprecedented debt relief package involved payment of outstanding arrears of $6.4 billion, a debt write-off of $16 billion, and a debt buyback of the remaining $8 billion (at a 25 percent discount) for $6 billion". Before the debt relief deal, Nigeria paid a huge sum of $4.9 billion every year on debt servicing (Aluko and Arowolo, 2010). The effect of the Paris Club debt relief was immediately observed in the reduction of the naira / dollar exchange rate from 130.6 Naira in 2005 to N128.2 in 2006, and then N120.9 in 2007 (Central Bank of Nigeria, 2009).

As at December, 2012, Nigeria' total debt stock was N7.55 trillion. At the end of December 2013, the external debt comprising of federal and state government debts to international multilateral agencies stood at N1.37 trillion ($8.82 billion at the exchange rate of N155.75/$1). This accounted for 13.68 percent of the total debt stock, while the domestic debt stock totaling N8.67 trillion accounted for 86.32 per cent of the total debt stock (Anthony-Uku, 2014). With respect to actual debt service charges, N794.56 billion was used in servicing both the domestic and external debt stocks in 2013 compared to N721.0 billion used in 2012. This showed an increase of 10.2 percent compared to 2012 figure. The actual debt service charges also overshot the N591.76 billion provided in the 2013 Appropriation Act for debt servicing by 34.27 percent (Anthony-Uku, 2014). Increased debt profile resulted from the need to help fund the budget or other domestic expenditures such as infrastructure projects as well as to settle some contractor arrears.

A further breakdown indicated that the federal government increased its external borrowing from $4.14 billion in 2012 to $6.005 billion in 2013. This represented an increase of $1.86 billion, which is an increase of 45.05 percent. The federal government's borrowing from multilateral agencies increased to $3.52 billion in 2013 from $2.88 billion the previous year while the balance of $2.48 billion was from bilateral agencies including the China Export-Import Bank and Commercial Eurobonds offerings, indicating increase of almost 100 per cent

(96.8) over the $1.26 billion in 2012. As at the second quarters of 2013, the total external debt stock climbed to US$6.92 billion (Central Bank of Nigeria, 2013). Okoro (2013) further opined that the changing debt profile from the 1960s to recent period in Nigeria could be linked to major factors such as high budget deficits, low output growth, large expenditure growth, high inflation rate, and narrow revenue base. Output growth declined as it recorded annual average values of 5.9% in 1980-1984, 4% in 1990–1994 and 2.8% in 1998–1999, respectively. Public expenditure as a percentage of GDP increased from 13% in the 1980 – 1989 to 29.7% in the 1990–1994 periods. The increased public expenditures to gross domestic product ratio resulted from fiscal policy expansion embarked upon during the oil boom era of the 1970s. However, as the oil boom declined in the 1980s, priorities of government expenditure did not change.

As at December, 2014, total external debt in Nigeria rose to $10 billion dollar while domestic debt was $50 million dollar. Nigeria's external debt rose to $11 billion in October 2015 as against the $ 9.4 billion recorded in March the same year while domestic debt rose to N11 trillion. In July 2015, total debt stock (external and domestic) stood at N12.12 trillion while it was N16.29 trillion in June 30th 2016. This represented an increase of N4.17 trillion or 34.41 percent increase (Nwankwo, 2016).

III.   LITERATURE REVIEW

The nexus between external debt and economic growth has been examined both in cross country studies and country specific studies with different methodologies and results. This literature review dwells on country specific studies rather than cross country studies. The conclusion from the review is that most studies on Nigeria's date only consider the impact of external debt on economic growth without considering whether there is debt Laffer curve. Iyoha (2000a) empirically tests the validity of the debt overhang theory as it relates to Nigeria. He undertakes a comprehensive investigation of the impact of external debt reduction on economic growth in Nigeria using policy simulation. He finds a significant debt overhang effect as well as a crowding out effect. The dynamic simulations show that between 1986 and 1994, a reduction of debt stock by 75 percent would have raised the investment/GDP ratio by 8.6 percent and increased real GDP by 7.8 percent.

Karogol (2002) investigates both the short-run and long-run relationships between economic growth and external debt service for Turkey during the period 1956 – 1996. The Vector Autoregression estimates show that there exists one co-integration equation. It also reveals that debt service is negatively related to economic growth in the long-run. The causality test shows uni-directional causality between debt service and economic growth. Audu (2004)

examines the impact of external debt on economic growth and public investment in Nigeria from 1970-2002. The empirical investigation is done using the co-integration test and error correction method. The study shows that debt servicing pressure in the country has had a significantly adverse effect on growth and past debt accumulation negatively affects public investment. Mutasim and Abdelwawla (2005) investigate the impact of external debt on economic growth of Sudan over a period spanning 1978 – 2001. The study shows that export earnings have a significant positive impact while external debt and inflation have negative impact on Sudan's economic growth. Budina, Pang and Wijnbergen (2006) attempt to establish if Nigeria experiences Dutch disease or debt overhang by considering the past and lessons for the future. They conclude that debt overhang problems exacerbated by misguided policies were the main factor behind the poor performance of the previous century.

Adepoju, Salau and Obayelu (2007) analyze the effects of external debt management on the economic growth of Nigeria in the period 1962 to 2006 using time-series data of the various bilateral and multilateral arrangements. Their study concludes that accumulation of external debt adversely affects Nigeria's economic growth. Ayadi and Ayadi (2008) examine the impact of the huge external debt with its servicing requirements on economic growth of the Nigerian and South African economies using both Ordinary LeastSquare (OLS) and Generalized Least Square (GLS) methods. Their finding reveals negative impact of debt and its servicing requirement on the economic growth of Nigeria and South Africa.

A study by Hameed, Ashraf, and Chaudhary (2008) on Pakistan analyzes the long run and short run relationships between external debt and economic growth. Annual time series data from 1970 to 2003 are used to examine the dynamic effect of GDP, debt service, capital stock and labour force on her economic growth. The study concluded that debt servicing burden has a negative effect on the productivity of labour and capital, thereby adversely affecting economic growth. Adesola (2009) empirically investigates the effect of external debt service payment practices on the economic growth of Nigeria using data from 1981 to 2004. Ordinary least squares method is used to examine how debt payment to creditors such as Paris Club creditors, London Club creditors, Promissory Notes holders and other creditors relate to gross domestic product and gross fixed capital formation. The study provides evidence that debt payment to Paris club creditors and Promissory Notes holders are positively related to gross domestic product and gross fixed capital formation while debt payment to London club creditors and other creditors show a negative significant relation to gross domestic product and gross fixed capital formation.

Malik, Hayat, and Hayat (2010) explore the relationship between external debt and economic growth in Pakistan in the period 1972 – 2005, using time series econometric technique. Their result shows that external debt is negatively and significantly related to economic growth. Choong, Lau, Liew, and Puah (2010) examine the effect of different types of debts on the economic growth in Malaysia during the period 1970 – 2006. Based on Co-integration test, the findings suggest that all components of debts have a negative effect on long-run economic growth. The Granger causality test reveals the existence of a short-run causality linkage between all debt measures and economic growth.

Using the ordinary least squares estimation technique and data in the period 1970 through 2007, Ogege and Ekpudu (2010) examine the impact of debt burden on the Nigerian economy. The result shows a negative relationship between internal and external debt stocks and economic growth. With respect to the relationship between external debt management policies and economic growth in Nigeria, Udoka and and Anyingang (2010) use data for 1970-2006 and the ordinary least squares. They find that gross domestic product is a strong determinant of external debt. However, they do not establish the nature of relationship.

Ogunmuyiwa (2011) investigates the relationship between external debt and economic growth in Nigeria using time-series data from 1970-2007. The regression equation is estimated using Granger causality test, Johansenco-integration test and vector error correction method (VECM). The results reveals that causality does not exist between external debt and economic growth in Nigeria.

Sulaiman and Azeez (2012) in their study examine the effect of external debt on the economic growth of Nigeria in the period 1970 to 2010, using Johansen Co-integration test and Error Correction Methodology (ECM) for their estimation. Their empirical result shows that external debt has contributed positively to the Nigerian economy. The study recommends that government should ensure economic and political stability and external debt should be acquired largely for economic reasons rather than social or political reasons.

Ajayi and Oke (2012) harp on the effect of external debt on economic growth and development of Nigeria. They use the ordinary least squares and find that external debt burden had an adverse effect on the income and per capital income of the nation. According to them, high level of external debt leads to devaluation of the national currency, increase in retrenchment of workers, continuous industrial strike and poor educational system.

Egbetunde (2012) examines the causal nexus between public debt and economic growth in Nigeria in the period 1970 and 2010 using a Vector Autoregressive. The author found a bi-directional causality between public debt and economic growth in Nigeria and concludes that public debt and economic growth have long run relationship. They are positively related if the government is sincere with the loan obtained and use it for the development of the economy rather than channel the funds to their personal benefit. Erhieyovwe and Onovwoakpoma (2013) examine external debt burden and its impact on major macro economic variables in Nigeria. They find a positive relationship between external debt and economic growth in Nigeria.

Mbanasor and Okere (2014) attempt to establish whether external debt is a tool for or a threat to the economic growth of Nigeria. They find that external debt will positively affect economic growth increasingly in the near future if public debts are managed in such a manner that they are invested in self-liquidating developmental projects.

Ibi and Aganyi (2015) analyse the impact of external debt on economic growth in Nigeria using the variance decomposition and impulse response from vector autoregressions. They find that the causation between external debt and economic growth is weak and external debt cannot be used to forecast changes in economic growth. Udeh, Ugwu and Onwuka (2016) consider the Nigerian experience on the nexus between external debt and economic growth. They use data for 1980 to 2013 and co-integration and error correction model. They find that external debt had a positive relationship with economic growth in the short run, but a negative relationship in the long run. Mba, Agu and Umuna (2016) use ARDL Bound testing approach to establish the impact of external debt on economic growth in Nigeria. The study establishes a negative relationship between external debt and output and a unidirectional causality between external debt and economic growth.

IV.   CONCEPTUAL FRAMEWORK

In modern law, debt has no precise meaning and may be regarded essentially as that which one person legally owes to another or an obligation that is enforceable by legal action to make payment of money (Umaru, Hamidu and Musa, 2013). Efthimimiadis and Tsintzos (2011) consider debt as a future tax on output which leads to a discouragement of private sector investment plans and adjustment efforts on the part of governments.

Sometimes government expenditure may exceed its revenue resulting in a deficit. One of the ways to finance such a deficit is through the issue of bonds. According to Okoro (2013), debts may be classified into reproductive and

dead-weight debts. Debt is reproductive when a nation, state or organization borrows to finance some kind of capital projects such as electricity, road construction, factories, and refineries, while debt undertaken to finance wars and expenses on current expenditures are dead-weight debts.

Anyanwu (1997), is of the opinion that public debt is all claims against the government held by the private sector of the economy, or by foreigners, whether interest-bearing or not, less any claims held by the government against the private sector and foreigners. He avers that public debt may include, all the outstanding amount of loans borrowed and the bonds issued directly by the general government, and the loans guaranteed by it, as well as the loans and bonds borrowed or issued by parastatals, States and central government. The sources of public debt include: the Central Bank through ways and means advances; issuance of bonds; and the external or international sources. Regarding external debt, this could be grouped into official and private debt sources. The official debt consists of the Paris club debt, the multilateral debts and the bilateral debts. The Private debts is made up of uninsured short-term trade arrears contracted through the medium of bills for collection, open account, and commercial bank debts acquired through loans/letters of credit. The uninsured private credits are referred to as London club debts.

With respect to classification, public debt can be classified into domestic debt and external debt. Domestic debt originates from loans sourced within the economy, either from the banking system and non-bank public. Domestic debts are usually created for budget deficit financing and to develop financial instruments so as to deepen the financial markets. External debt is a debt incurred by a nation that is payable in other currencies other than that of the debtor country. External debt is debt owed by residents to non-residents and includes short term debts, such as trade debts which mature between one and two years, or whose payment would be settled within a fiscal year in which the transaction is conducted. Gross external debt, is the outstanding amount of those actual current, and not contingent, liabilities that require payment(s) of principal and/or interest by the debtor-country at some point(s) in the future and that are owed to non-residents by the residents of an economy.

Okoro (2013) further documents that the external debt of Nigeria in the past few years is owed majorly to a few creditor countries. These are countries that belong to the Paris club, that is, government-to-government credits or market–based term loans, which are guaranteed by various export credit agencies (ECA) of the creditor countries. Paris club is an informal group with no permanent members and work under the principle of consensus. The multilateral debts are project loans owed by the federal and State governments and their agencies to multilateral financial institutions. Some of such institutions are the

World Bank Group, the Africa Development Bank Group, the European Investment Bank Group, IFAD and ECOWAS Fund. The bilateral debts are debt owed to countries which are not members of the Paris club, but whose debts are not insured by the Export Credit agencies. High levels of debt lead to a reduction in both private and public investment thereby, having a declining effect on growth rates. High level of debt covered have a negative effect on an economy as high levels of external debt indebtedness could significantly retard economic growth as a result of debt overhang.

Several indicators are used to measure debt burden and its sustainability are usually reported in ratios. Some of them are the ratio of Debt Stock to Export; the ratio of Debt Service to Gross Domestic Product; the ratio of Debt Service to Exports; the Debt Stock/Gross Domestic Product ratio; the Reserves/Import ratio and the Reserves/Debt Stock ratio. (Omoruyi, 2016)

The Debt Service/Export ratio and Debt Service/Gross Domestic Product ratio show respectively the proportion of exports and national output that are used to service debt incurred in the past. Note that the Debt Service/Export ratio is a liquidity measure. As the ratio increases, the debtor's ability to meet debt servicing obligation declines and this directly shows that the debt is likely to be unsustainable. This situation can be very undesirable as it may require huge adjustment to compensate for adverse balance-of-payments developments. With respect to Debt Service/Gross Domestic Product ratio, it measures the magnitude of current domestic output used in meeting debt service obligations. The Reserves/Debt Stock ratio, though not a common measure of debt sustainability, measures the reserves cover of stock. The greater the ratio the more comfortable the debtor appears to be in terms of its capacity to meet its external commitments. Similarly, the Reserves/Import ratio measures the capacity of the country to pay for its imports.

Each of these indicators has its advantages and limitations; hence, they should be used with caution. The strength of any economy depends on its output and export potentials; therefore, its debt stock with regard to its export should be well balanced and sustainable. Similarly, the ratio of External Debt Stock to Gross Domestic Product is a scaled measure of debt stock position. It basically measures the foreign presence in an economy in the form of past reliance on contractual foreign capital inflow with the potential of attracting capital outflow in the future. The potentiality of a high external debt ratio for a high burden creation depends on the terms of the loan regarding its maturity structure, interest rate and what the loan was used for (Kasidi *et al*, 2013). Similarly, the debt burden indicators suffer the limitations endemic to ordinal measurement. For instance, a country with a low ratio of debt stock to GDP may record unsustainable external debt if the value of exportables constitutes a very small

proportion of its GDP. In such a case foreign exchange resources may not be available to meet its debt service payments. Furthermore, the debt/GDP ratio can be influenced by exchange rate variations since local currency depreciation can raise the ratio if physical output and debt stock in foreign currency remain unchanged.

Furthermore, Omoruyi (2005) is of the opinion that many debt ratios such as Debt Stock/Gross Domestic Product ratio and Debt Stock/Exports ratio do not convey the terms and conditions and mix of concessional and non-concessional debt. These conditions have different impacts on the magnitude of the subsequent debt service payments. The greater the level of concessionality in a stock of debt, which allows for long grace and maturity periods and low interest, the better, compared with debt with short maturity and high interest rate. According to him, it will be difficult to minimize the debt service difficulty.

Another important dimension to measuring the burden or sustainability of external debt is the use of the net present value (NPV) of such debt in terms of the discounted value of future debt service payments. However, the problem with this is that it compares future debt service obligations with existing repayment capacity without considering the country's ability to grow. This is particularly relevant when the debt maturity period is long. Moreover, while net present value indicators may signal debt servicing difficulties sometime in the future, they do not provide information on when these problems may become pressing. Similarly, the discount rate may vary with market conditions. However, the net present value approach has to its advantage the capacity to make an effective comparison of debt burden among the countries on the same level of development (Kasidi *et al*, 2013). .

Sachs (2000) has argued that the use of the indicators such as debt and debt service to exports should be complemented with net present value debt-to-GDP which in itself is a good overall indicator of a country's indebtedness. This is not only because it puts all countries at par in considering the heaviness of debt, but also it is less volatile than net present value debt-to- exports indicator and more easily available than the net present value debt-to-government revenue indicator. Kappagoda and Alexandra (2004) develop five indicators that together allow for sustainability conclusions to be drawn. The first indicator is the Present value of Debt to gross domestic ratio: The gross domestic product figure used is the average of the current year and two preceding years. Comparisons of gross domestic product demonstrate the size of debt in comparison to the size of the economy. The second indicator is the present value of debt to export ratio: The exports figure used is the average of the current and the two preceding years. Comparisons to exports demonstrate the ability to pay for the debt; however, the availability of funds to pay for the debt depends on the

openness of the economy and arrangements made for attracting foreign direct investment.

According to Myers (1977), the term "debt overhang" originates in the corporate finance literature. It indicates a situation in which a firm's debt is so large that any earnings generated by new investment projects are entirely appropriated by existing debt holders. Even projects with a positive net present value cannot reduce the firm's stock of debt or increase the value of the firm. The concept of debt overhang became prominent in international finance literature in the mid-1980s, when the debt crisis motivated a series of influential papers by Krugman (1989).

Krugman (1988) defines debt overhang as a situation in which the expected repayment on external debt falls short of the contractual value of debt, and therefore expected debt service is likely to be an increasing function of the country's output level. The negative relation between debt and investments is called debt overhang (Sundell and Lemdal, 2011). This was what happened after the debt crisis of 1982 when investments declined precipitously in the severely indebted countries.

According to the World Bank (1999), if three out of four of the following criteria are present, the country is severely indebted: ratio of debt to GNP of 50% or more, ratio of debt to exports of goods and all services of 275% or more, accrued debt services to exports ratio of 30% or more and accrued interest to exports ratio of 20% or more. Kasidi and Said (2013) also provide some general thresholds that have been considered in the empirical literature for each of the debt indicator ratios under the enhanced Heavily Indebted Poor Country (HIPC) Initiative beyond which a country's debt might be considered unsustainable. These include NPV Debt-to -Export ≥ 150 per cent, Export-to- GDP ≥ 30 per cent, and Government Revenue-to-GDP ≥15, NPV Debt – to- Government Revenue ≥ 250 per cent, Debt Service-to-Export ≥ 15 per cent and Debt Service-to-Revenue ≥ 25 per cent.

The concept of debt overhang characterizes a situation in which the future debt burden is perceived to be so high that it acts as a disincentive to current investment, as investors think that the proceeds of any new project will be taxed away to service the pre-existing debt. A mild debt overhang also known as liquidity trap can be resolved with new money approach alone (Sachs, 1989). When a debtor country is experiencing a debt overhang that is more severe than a liquidity trap is willing to commit to an adjustment programmes against the provision of liquidity alone, the situation is called a 'weak' debt overhang. Such situation requires the commitment mechanism and new money creation to resolve the crisis without the need to reduce debt and debt services. But a

'strong' debt overhang cannot be resolved without debt and debt service reductions; the debtor will be unwilling to commit to a large investment programmes without debt reduction, even if large amounts of liquidity are not available. Sustainability of debt may be evaluated by using Laffer curve technique, developed by Sachs (Chaudhary and Anwar, 2001).

The debt Laffer curve was first brought to the fore in the context of the "debt overhang" argument by Jeffrey Sachs (1989). Krugman (1989) formalizes the actual derivation of the curve and the logic behind it.　According to Bachvarova (2008), the curve presents a situation in which a country that is borrowing too much may surpass a certain endogenous threshold of debt level which may result in efficiency losses. That is due partly to the magnitude of the debt burden and the inability of the country to invest part of its income because of servicing the debt. According to the author, in such cases debt forgiveness is suggested to decrease the risk of default. Debt forgiveness leads not only to maintain the current market value of securities, but also to increase expected value of monetary flows related to repayment of obligations of debtor countries. When a country is borrowing too much, its ability to finance decreases and thus the risk of default occurs (Tatu, 2014).

V.　　METHODOLOGY, MODEL SPECIFICATION AND REGRESSION RESULTS

Following the studies of Patillo, Poirson and Ricci (2002) and Baraki (2005) the study fits a quadratic economic growth function in debt stock and some selected control variables to test the existence of a smooth inverted U-shaped debt Laffer curve in Nigeria. Four different models were estimated using quarterly time-series data and the Ordinary Least Squares estimation technique. In the case of autocorrelation in the residuals, this was corrected using the Cochrane-Orcutt method. The estimations were carried out for the following periods:

(i)	1981Q1 – 1998Q4	Model 1
(ii)	1999Q1 – 2005Q4	Model 2
(iii)	2006Q1 – 2013Q4	Model 3
(iv)	1981Q1 – 2013Q4	Model 4

Note that for an inverted-U type quadratic relationship to exist, the coefficient of the debt variable should be positive and statistically significant and that of its squared value should be negative and statistically significant. Thus, the paper specifies the following quadratic functions in log form:

(Model1: 1981Q1 – 1998Q4)

$$LNRGDP = \eta_0 + \eta_1 LNXDEBTG + \eta_2 LNXDEBTGQ + \eta_3 LNXPORTG + \eta_4 LNEXRT + \eta_5 LNYAGRG + \eta_6 DSAP + \mu \quad (1)$$

where:

$LNRGDP = $ Log of real gross domestic product, a proxy for economic growth

$LNXDEBTG =$ Log of external Debt- to- GDP ratio

$LNXDEBTGQ =$ Log of the square of External Debt-to- GDP ratio

$LNXPORTG =$ Log of export –to- GDP ratio

$LNEXRT =$ Log of exchange rate

$LNYAGRG =$ Log of agricultural output –to- GDP ratio

$DSAP =$ Dummy variable representing SAP period

(Model 2: 1999Q1 – 2005Q4)

$$LNRGDP = \beta_0 + \beta_1 LNXDEBTG + \beta_2 LNXDEBTGQ + \beta_3 LNEXRT + \beta_4 LNYAGRG + \beta_5 LNINVG + \beta_6 LNLINTR + \beta_7 DRELIEF + \mu$$

where:

$LNINVG =$ Log of investment-to-GDP ratio

$LNLINTR =$ Log of lending interest rate

$DRELIEF =$ Debt relief dummy

All other variables are as defined.

(Model 3: 2006Q1 – 2013Q4)

$$LNRGDP = \alpha_0 + \alpha_1 LNXDEBTG + \alpha_2 LNXDEBTGQ + \alpha_3 LNEXPORTG + \alpha_4 LNYAGRG + \mu$$

Where all the variables are as earlier defined.

(Model 4: 1981Q1 – 2013Q4)

$$LNRGDP = \gamma_0 + \gamma_1 LNXDEBTG + \gamma_2 LNXDEBTGQ + \gamma_3 LNEXPORTG + \gamma_4 LNEXRT + \gamma_4 LNYAGRG + \gamma_5 LNINVG + \mu$$

All the variables are as earlier defined.

Regression Results

The dependent variable in all the estimation is LNRGDP

Variable	Model 1 (1981Q1 – 1998Q4)	Model 2 1999Q1 – 2005Q4	Model 3 2006Q1 – 2013Q4	Model 4 1981Q1 – 2013Q4
Constant	10.7565*** (48.1065)	8.1635*** (10.7173)	13.9145** (2.0288)	11.7786*** (11.9879)
LNXDEBTG	-0.44778*** (-4.1759)	-2.5419** (-5.6363)	-0.41344 (-0.4777)	-0.59960*** (-4.0150)
LNXDEBTGQ	-0.077238*** (-4.1691)	-0.63544*** (-4.5368)	-0.045178 (-0.36801)	-0.56238*** (-2.4587)
LNXPORTG	0.0014473 (0.16916)		-0.27786*** (-3.7397)	-0.058251)*** (-2.8130)
LNEXRT	0.0081236 (0.38768)	0.60447** (2.7533)		0.0052347 (0.13641)
LNYAGRG	0.18199*** (-7.3925)	0.11242* (1.9994)	0.53617** (2.4655)	0.044890 (0.96537)
DSAP	.014999 (0.95935)			

LNINVG		-0.088824		-0.25667***
		(-1.3715)		(-7.0271)
LNLINTR		-0.49391***		
		(-6.5150)		
DRELIEF		-0.13499***		
		(-4.4936)		
R^2	0.98753	0.98633	0.76728	0.98516
$\bar{R}^2$	0.98590	0.98154	0.70657	0.98418
F-STAT	F(8, 61) 604.0435	F(7, 20) 206.1128	F(6, 23) 12.6382	F(8, 121) 1004.0
DW-STAT	2.0264	1.6896	1.8564	1.9286

***(**)*: Significant at 1%(5%)10%; Figures in parentheses are the t-statistic

From model 1, given quarterly data from 1981Q1 to 1998Q4, the initial estimation using OLS (see appendix 1) shows a good fit. More than 94 percent of the depended variable is explained by the independent variables. The result reveals that all the variables are significant in the determination of economic growth except dummy variable representing the period of SAP. In the estimation, autocorrelation was significant with DW-statistic figure of 0.4559.

However, using the Cochrane – Orcutt method to correct for autocorrelation as revealed in Table 1 (model 1), the result shows that External Debt- to- GDP ratio (LNXDEBTG) and the square of External Debt-to- GDP ratio (LNXDEBTGQ) are both negative and significant at one percent level of significance in the determination of economic growth within the period considered. An increase of External Debt-to- GDP ratio (LNXDEBTGQ) by 10 percent will reduce economic growth by about 4.4 percent. This implies that external debt did not contribute to growth and there is the absence of debt Laffer curve. Furthermore, export – to- GDP ratio (LNXPORTG) has a positive relationship with economic growth, though; it was not significant in the determination of economic growth within the period. The result shows that an increase of export –to- GDP ratio (LNXPORTG) by 10 percent will increase economic growth marginally. Surprisingly, agricultural output –to- GDP ratio (LNYAGRG) has a negative relationship with economic growth, though, was significant at one percent significant level. This implies that within the period, policies put in place to develop agriculture did not contribute to growth. The SAP dummy (DSAP), though, has positive relationship with economic growth was not significant. The coefficient of determination reveals that more than 98 percent of the variation in the dependent variable is explained by the independent variable. The F-statistic shows that all the variables are jointly significant in the determination of economic growth within the period. Autocorrelation is not significant as (DW-statistic of 2.0264) lies within acceptable range.

From model 2, using quarterly data from 1999Q1 to 2005Q4, the OLS estimation shows a good fit. More than 98 percent of the dependent variable is explained by the independent variable. The result shows that External Debt- to- GDP ratio (LNXDEBTG) and the square of External Debt-to- GDP ratio (LNXDEBTGQ) are both significant at one percent level of significance in the determination of economic growth within the period considered. Both have negative relationship with economic growth which also implies the absence of a debt Laffer curve.

Within this period, agricultural output –to- GDP ratio (LNYAGRG) has positive and significant (at 10 percent level of significance) relationship with economic growth. The result revealed that a 10 increase in agricultural output would increase economic growth by about 1 percent. Investment- to-GDP ratio (LNINVG) has negative relationship and it is not significant in impacting on economic growth within the period contrary to *a priori* expectation. Investment-to-GDP ratio (LNINVG) is supposed to be growth enhancing, but probably because of huge debt incurred by the country at that time, it could not enhance growth.

Lending interest rate met the *a priori* expectation. When lending interest rate increases, there will be disincentive to borrow from bank whereas, a lower lending interest rate enhances economic growth through increased investment. This is because; business men will be encouraged to approach the banks for loans *ceteris paribus*. Interestingly, debt relief dummy (DRELIEF) was significant at one percent level of significance in the determination of economic growth; however, it has negative relationship with economic growth. This is not surprising because, even with the debt relief package, the country still had domestic debt to contend with at that time. Autocorrelation is not significant.

From model 3, given quarterly data from 2006Q1 to 2013Q4, the initial estimation using OLS (see appendix 2) shows a poor fit. Only about 31 percent of the depended variable is explained by the independent variables. Only export –to- GDP ratio (LNXPORTG) has a positive and significant relationship with economic growth. Autocorrelation is significant. When autocorrelation is corrected for using the Cochrane – Orcutt method, the coefficient of determination improves significantly. It shows that more than 76 percent of the variation in the dependent variable is explained by the independent variable.

The F-statistic shows that all the variables jointly determine economic growth within the period. The result shows that both External Debt- to- GDP ratio (LNXDEBTG) and the square of External Debt-to- GDP ratio (LNXDEBTGQ) are not significant in the determination of economic growth. Both also have negative impact on growth within the period which also shows that external debt did not contribute to growth and there is the absence of a debt Laffer curve. Within the

period, agricultural output –to- GDP ratio (LNYAGRG) has positive and significant (at 1 percent level of significance) relationship with economic growth. Contrary to expectation, export –to- GDP ratio (LNXPORTG) has a negative but significant relationship with economic growth within the period. Autocorrelation is not significant.

With respect to the estimation for the entire period (1981Q1 – 2013Q4) as revealed in Table 1 model 4, autocorrelation is found to be significant with DW-statistic of 0.50351 (see Appendix 3). After correcting for autocorrelation using the Cochrane – Orcutt method, both External Debt- to- GDP ratio (LNXDEBTG) and the square of External Debt-to- GDP ratio (LNXDEBTGQ) have negative relationship with economic growth. This also shows the absence of a debt Laffer curve in the entire period. Investment- to-GDP ratio (LNINVG) and export –to- GDP ratio (LNXPORTG) have negative and significant relationship with economic growth contrary to *a priori* expectation. Agricultural output –to- GDP ratio (LNYAGRG) has positive and insignificant relationship with economic growth.

VI.   SUMMARY AND CONCLUSION

Rapid growth of external debt in Nigeria has given rise to the need to empirically ascertain if Nigeria suffers from a debt overhang and to ascertain if there exists a debt Laffer curve. The increase in external debt in recent years in Nigeria shows that the country depends heavily on borrowed fund to meet shortfalls in revenue.

The study uses quarterly data for the periods 1981Q1 – 1998Q4, 199Q1 – 2005Q4, 2006Q1 – 2014Q4 and 1981Q1 – 2013Q4 and the OLS estimation technique (and the Cochrane-Orcutt method to correct for any observed autocorrelation in the residuals). It is expected that for an inverted-U type quadratic relationship to exist, the coefficient of the external debt variable should be positive and statistically significant and that of its squared value should be negative and statistically significant.

The results reveal that agriculture–to-GDP ratio is significant in the determination of economic growth throughout the different periods of estimation except for the period 1981Q1 – 2013Q4 where its contribution to economic growth is not significant, though still positive. Within the period of SAP, agriculture contributed negatively to economic growth probably because there was much emphasis on the crude oil sector leading to the neglect of the agricultural sector.

Between 1981Q1 and 1998Q4, the ratio of non-oil exports to GDP contributes positively to growth, though, it is not significant. It is possible that non-oil exports could not significantly contribute to growth because it could not compete with

other goods in the international markets. However, in models 3 and 4, the ratio non-oil exports to GDP ratio has a negative and significant relationship with economic growth in Nigeria. In models 3 and 4, a 10 percent increase in non oil-export-to-GDP ratio reduces economic growth by 2.7 percentage points and 0.5 percent, respectively. Generally, in all the estimations, exchange rate positively affects economic growth implying that depreciation of the Naira will further strengthen economic growth. Presumably, currency depreciation discourages imports and helps to boost exports. Overall, external debt has not positively contributed to economic growth of Nigeria and there is no discernable evidence of a debt Laffer curve. This conclusion is reached because the coefficients of external debt –to- GDP ratio and its squared value are negative in all the estimation periods. Therefore, the study concludes that external debt has been a drag on economic growth in Nigeria, implying that too much debt is bad for economic growth. For external debt to contribute to growth of the Nigerian economy, any borrowed fund should be used for productive investment.

It must be emphasized, however, that the conclusions reached in this study are tentative considering the limitations not only in data used but also the weaknesses in measurement and models. Even so, the robustness of most of the results and goodness of fit statistics cannot nullify the conclusions, but do provoke the need for further work on the subject of existence of debt overhang and debt laffer curve in Nigeria's debt management experience.

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Appendix 1: OLS Estimation Model 1

Ordinary Least Squares Estimation
****

Dependent variable is LNRGDP
72 observations used for estimation from 1981Q1 to 1998Q4
****

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
C	10.5415	.081334	129.6070[.000]
LNXDEBTG	-.16816	.075230	-2.2352[.029]
LNXDEBTGQ	-.034631	.020203	-1.7142[.091]
LNXPORTG	.043074	.012500	3.4459[.001]
LNEXRT	.085148	.015557	5.4734[.000]
LNYAGRG	-.21478	.051115	-4.2019[.000]
DSAP	.015696	.018334	.85608[.395]

****

R-Squared   .94721   R-Bar-Squared   .94234
S.E. of Regression   .042347   F-stat.   F(6, 65) 194.4009[.000]
Mean of Dependent Variable   11.0019   S.D. of Dependent Variable   .17636
Residual Sum of Squares   .11656   Equation Log-likelihood   129.1724
Akaike Info. Criterion   122.1724   Schwarz Bayesian Criterion   114.2041
DW-statistic   .45594
****

Diagnostic Tests
****
* Test Statistics *   LM Version   *   F Version   *
****
*   *   *   *   *
* A:Serial Correlation*CHSQ(4)= 46.5621[.000]*F(4, 61)= 27.9139[.000]*
*   *   *   *   *
* B:Functional Form *CHSQ(1)= .17053[.680]*F(1, 64)= .15194[.698]*
*   *   *   *   *
* C:Normality   *CHSQ(2)= 2.3489[.309]*   Not applicable   *
*   *   *   *   *
* D:Heteroscedasticity*CHSQ(1)= 2.5005[.114]*F(1, 70)= 2.5185[.117]*
****

A:Lagrange multiplier test of residual serial correlation
B:Ramsey's RESET test using the square of the fitted values
C:Based on a test of skewness and kurtosis of residuals
D:Based on the regression of squared residuals on squared fitted values

Appendix 2: OLS Estimation Model 3

Ordinary Least Squares Estimation
****
Dependent variable is LNRGDP
28 observations used for estimation from 1999Q1 to 2005Q4
****

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
C	8.9926	1.0224	8.7955[.000]
LNXDEBTG	-2.7629	.62019	-4.4549[.000]
LNXDEBTGQ	-.73960	.19153	-3.8615[.001]
LNYAGRG	.13898	.077356	1.7967[.087]
LNINVG	.028690	.081971	.35000[.730]
LNEXRT	.29940	.28885	1.0366[.312]
LNLINTR	-.33004	.091949	-3.5894[.002]

****
R-Squared   .97252 R-Bar-Squared   .96467
S.E. of Regression   .042607 F-stat.   F(6, 21) 123.8816[.000]
Mean of Dependent Variable 11.5564 S.D. of Dependent Variable .22669
Residual Sum of Squares   .038122 Equation Log-likelihood   52.6579
Akaike Info. Criterion   45.6579 Schwarz Bayesian Criterion   40.9952
DW-statistic   1.1037
****

                    Diagnostic Tests
****
*   Test Statistics *   LM Version   *   F Version   *
****
*   *   *   *
* A:Serial Correlation*CHSQ(4)= 13.2180[.010]*F(4, 17)= 3.8003[.022]*
*   *   *   *
* B:Functional Form *CHSQ(1)= 1.4149[.234]*F(1, 20)= 1.0644[.315]*
*   *   *   *
* C:Normality   *CHSQ(2)= 6.3506[.042]*   Not applicable   *
*   *   *   *
* D:Heteroscedasticity*CHSQ(1)= 4.7240[.030]*F(1, 26)= 5.2768[.030]*
****
 A:Lagrange multiplier test of residual serial correlation
 B:Ramsey's RESET test using the square of the fitted values
 C:Based on a test of skewness and kurtosis of residuals
 D:Based on the regression of squared residuals on squared fitted values

Appendix 3: OLS Estimation Model 4

Ordinary Least Squares Estimation
****
Dependent variable is LNRGDP
132 observations used for estimation from 1981Q1 to 2013Q4
****

Regressor	Coefficient	Standard Error	T-Ratio[Prob]
C	10.7554	.20254	53.1019[.000]
LNXDEBTG	-.29093	.083539	-3.4825[.001]
LNXDEBTGQ	-.014075	.016467	-.85469[.394]
LNINVG	-.055681	.049842	-1.1171[.266]
LNXPORTG	.058848	.032557	1.8075[.073]
LNEXRT	.12678	.028749	4.4098[.000]
LNYAGRG	.24159	.10682	2.2616[.025]

****
R-Squared   .93643   R-Bar-Squared   .93337
S.E. of Regression   .13186   F-stat.   F(6, 125) 306.8682[.000]
Mean of Dependent Variable   11.3934   S.D. of Dependent Variable   .51085
Residual Sum of Squares   2.1734   Equation Log-likelihood   83.7303
Akaike Info. Criterion   76.7303   Schwarz Bayesian Criterion   66.6405
DW-statistic   .50351
****

                     Diagnostic Tests
****
*   Test Statistics *   LM Version   *   F Version   *
****
*   *   *   *
* A:Serial Correlation*CHSQ(4)= 95.5621[.000]*F(4, 121)= 79.3337[.000]*
*   *   *   *
* B:Functional Form *CHSQ(1)= 29.5792[.000]*F(1, 124)= 35.8112[.000]*
*   *   *   *
* C:Normality   *CHSQ(2)= 2.0127[.366]*   Not applicable   *
*   *   *   *
* D:Heteroscedasticity*CHSQ(1)= 22.6901[.000]*F(1, 130)= 26.9849[.000]*
****

  A:Lagrange multiplier test of residual serial correlation
  B:Ramsey's RESET test using the square of the fitted values
  C:Based on a test of skewness and kurtosis of residuals
  D:Based on the regression of squared residuals on squared fitted values

Appendix 4: LIST (AND DEFINITION) OF THE VARIABLES USED IN THE REGRESSION MODELS

(Model1: 1981Q1 – 1998Q4)

$$LNRGDP = \eta_0 + \eta_1 LNXDEBTG + \eta_2 LNXDEBTGQ + \eta_3 LNXPORTG + \eta_4 LNEXRT + \eta_5 LNYAGRG + \eta_6 DSAP + \mu \quad (1)$$

where:

$LNRGDP =$ Log of real gross domestic product proxy for economic growth

$LNXDEBTG =$ Log of external Debt- to- GDP ratio

$LNXDEBTGQ =$ Log of the square of External Debt-to- GDP ratio

$LNXPORTG =$ Log of export –to- GDP ratio

$LNEXRT =$ Log of exchange rate

$LNYAGRG =$ Log of agricultural output –to- GDP ratio

$DSAP =$ Dummy variable representing SAP period

(Model 2: 1999Q1 – 2005Q4)

$$LNRGDP = \beta_0 + \beta_1 LNXDEBTG + \beta_2 LNXDEBTGQ + \beta_3 LNEXRT + \beta_4 LNYAGRG + \beta_5 LNINVG + \beta_6 LNLINTR + \beta_7 DRELIEF + \mu$$

where:

$LNINVG =$ Log of investment-to-GDP ratio

$LNLINTR =$ Log of lending interest rate

$DRELIEF =$ Debt relief dummy

All other variables are as defined.

(Model 3: 2006Q1 – 2013Q4)

$$LNRGDP = \alpha_0 + \alpha_1 LNXDEBTG + \alpha_2 LNXDEBTGQ + \alpha_3 LNEXPORTG + \alpha_4 LNYAGRG + \mu$$

Where all the variables are as earlier define

(Model 4: 1981Q1 – 2013Q4)

$$LNRGDP = \gamma_0 + \gamma_1 LNXDEBTG + \gamma_2 LNXDEBTGQ + \gamma_3 LNEXPORTG + \gamma_4 LNEXRT + \gamma_4 LNYAGRG + \gamma_5 LNINVG + \mu$$

All the variables are as earlier defined.

FISCAL MANAGEMENT AND MACROECONOMIC STABILIZATION: EVIDENCE FROM NIGERIA

By Hassan O. Ozekhome[2]

Abstract

Efforts by the Nigerian government to achieve macroeconomic stabilization through fiscal management has over the years been intractably stubborn on account of the volatile influence of an overbearing dependence on oil export and the resulting procyclicality of fiscal policy. It is against this backdrop that this paper seeks to examine the empirical nexus between fiscal policy (management) and macroeconomic stabilisation in Nigeria over the period 1980-2014. Efficient fiscal policy is one that is asymmetric over the business cycles by contracting during booms and expanding during recession, thus ensuring macroeconomic stabilization. Employing the ordinary least squares (OLS) and Generalised Method of Moments (GMM) estimation techniques to determine the cyclical properties of fiscal policy, and the countercyclical effort of fiscal policy, the paper finds that procyclicality of fiscal policy exacerbates macroeconomic instability in Nigeria. In particular, the results, using Nigerian data, show that fiscal management as a result of its dependence on oil makes stabilization effort problematic. The other variables, real output gap- a measure of business cycle and openness are found to be positive and significant, while rising inflation rate is found to have a destabilising effect on macroeconomic stabilization

The paper recommends among others, sound fiscal institutional framework to ensure a countercyclical fiscal policy stance, reform of public expenditure and tax system, diversification of the productive base of the economy in order to de-link it from its over-bearing dependence on oil and sound macroeconomic policies including governance in order to achieve macroeconomic stabilization in Nigeria.

Keywords: *Fiscal Management, Macroeconomic Stabilization, Procyclicality of Fiscal Policy, Institutions, GMM*

I.   INTRODUCTION

Recent years have seen a remarkable and exciting revival of interest in the empirical relationship between sound fiscal management and macroeconomic stabilization and rapid economic growth in the long run. Effective countercyclical management reflected in sound fiscal management is essential to short-run stabilization. Many resource-rich countries including Nigeria

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are victims of the so called "resource curse''. A high dependence on resource exports is often associated with lower growth and greater (Aunty, 2001). In particular, given Nigeria's very strong dependence on inherently volatile oil price, effective countercyclical macroeconomic management is essential to the successful development of the economy. A high dependence on resource exports is often associated with lower growth and greater economic instability due to "boom-bust'' government spending syndrome under highly volatile commodity prices (Aunty, 2001). During boom, time, economic overheating hinders development in labour-intensive sectors that compete in world markets, while investment becomes concentrated in speculative high risk areas (Nigeria Economic Report, 2013).

Studies such as those of Alesina and Tabellini (2005); Frankel, (2011), Debrun and Kapoor, (2010), have shown how fiscal actions act as a determinant of macroeconomic stabilization. In this regard, the specific roles of institutions in coordinating and aligning fiscal policy with macroeconomic stability have received considerable attention although most of the studies focus on cross-country date (Frankel, 2011; Debrun and Kapoor, 2010). These studies also investigate reasons why budget institutions play a role in shaping the fiscal response to the cycle. The general finding is that budgetary spending tends to expand during booms, often resulting in increased spending commitments which are difficult to rescind. The overall finding from the studies is that well-designed and efficient fiscal management enables policymakers to raise awareness about the medium-term implications of policy actions, and highlight the need for sustainable macroeconomic stabilization. In particular, sound fiscal discipline reflected in cautious and prudent budgetary spending, tax and debt management has the capacity to enhance macroeconomic stability and facilitate rapid economic transformation in Nigeria.

Apparently, strong fiscal institutions would be more successful in aiding fiscal stabilization when there is broad political support for pursuing fiscal objectives. In the same vein, increased access to oil funds by all tiers of government during periods of rising oil prices will definitely lead to spending patterns that are not consistent with a medium term expenditure structure. Essentially, the study argues that efficient fiscal management (in which fiscal policy is asymmetric over the business cycle ensures macroeconomic stabilisation, subject to existence of strong institutions. Procyclical fiscal policy as a result of over-bearing dependence on volatile oil proceeds is a manifestation of weak institutions that lead to weak fiscal management. Could the procyclical nature of fiscal policy and weak institutional fiscal mechanisms explain the weak fiscal stabilization outcomes in Nigeria? How can fiscal management be aligned in order to ensure macroeconomic stabilization. These and other pertinent issues are the

concerns of this study which uses Nigeria data as against available studies based on cross-country data.

For ease of presentation, the paper is divided into five parts. Besides the introductory part I, part II dwells on the theoretical issues including analysis of empirical evidence and fiscal policy-government budget nexus. Part III reviews fiscal management trends in Nigeria including fiscal policy trends in developing countries and shifts in causality. Part IV highlights the methodology and model specification including results and analysis. Part V contains the conclusion and policy recommendations.

II.0   THEORETICAL ISSUES

II.1.   Macro stabilization policies for long-run growth: Policy Perspective

The global financial crisis of 2008-2009 reignited the debate on the role of macroeconomic policies in ensuring macroeconomic stabilization. The role of macroeconomic stabilization policies can be contentious, especially as the policy room is increasingly limited in both developing and advanced economies. The theoretical literature on optimal stabilization in open economies shows that fiscal policy should be retained for short-run macroeconomic stabilization, while monetary policy should be retained for long run growth. To this end, sound fiscal management is essential and inevitable for macroeconomic stabilization. While the situation has been improving modestly in recent times, recovery remains vulnerable, particularly in countries whose economies depend majorly on oil, on account of the internationally generated and transmitted shock from oil prices. The volatility in oil prices provokes economic vacillations and difficulty in the fiscal management of these economies, resulting to macroeconomic instability .This unfortunate economic predicament has made macroeconomic stabilization policies intractably stubborn. In traditional macro theory, long-term GDP growth should be independent of any short-term macroeconomic stabilization policies. Similarly, the conventional view held that money is neutral. In the long run, monetary pol7icy affects prices, not real output. Although high inflation and price uncertainty is generally considered as harmful to growth, the effect of monetary policy on growth according to this view is only temporary. This draws largely on the neoclassical growth models where the ultimate determinant of long-term growth is technology-an exogenous variable (Park, 2012). The development of endogenous growth models challenged this view, however. The endogenous growth models view per capita GDP growth as an endogenous equilibrium outcome of the decisions by rational optimizing agents, whether firms or individuals, or the government and hence internalize the determinants of growth (Romer, 1986; Rebelo, 1991), such as accumulation of physical or human

capital, evolution of technology through research and development, or even the role of macroeconomic policy.

A plethora of evidence suggests that sound fiscal management is crucial for macroeconomic stability and for long-term growth. For instance, no country has achieved sustained high growth in a persistently high inflation or recessionary environment. The sharp volatility in output associated with financial crises and external shocks (for example, an oil price shock) had a rather enduring negative impact on stabilisation efforts and growth. Post-crisis evaluations often show that the crisis has a significant impact on potential growth starting. Many resource-dependent economies (including Nigeria) have experienced difficulty in achieving macroeconomic stabilization due to their commodity and resource-dependence, which are highly volatile. The most destabilizing impact on the stabilization effort of these resource-dependent economies, particularly Nigeria, is the massive downturn in oil prices in the international market, necessitating huge fiscal deficits and the resultant accumulation of external debt by the federal, state and local governments. There is little disagreement that macro stabilization policy should respond to short-term shocks and mitigate output volatility to minimize social welfare losses around the business cycle. However, this view is too passive, given the importance of providing stable macro environment for the long-term growth potential of the economy.

A well defined procedure for weak institutions in delivery of a debilitating fiscal management process (and the attendant poor economic effects) is demonstrated through the *voracity effect*. Lane and Tornell (1998, cited in Adegboye, 2013) develop the voracity effect explanation for poor fiscal outcomes in resource-rich developing countries by analysing the role of multiple powerful groups in an economy that lacks a strong legal-political institutional infrastructure. They endogenise the extent of discretionary fiscal redistribution to more fundamental characteristics of a country, namely the existence of powerful groups, physical rates of return, and institutional barriers to discretionary redistribution. Powerful groups dynamically interact via a fiscal process that effectively allows open access to the aggregate capital stock. In equilibrium, this leads to slow economic growth and a "voracity effect," by which a shock, such as terms of trade windfall, perversely generates a more than proportionate increase in fiscal redistribution, hampers effective macroeconomic stabilisation and reduces growth (Adegboye, 2013).
 The general consensus is that budgetary spending tends to expand during booms, often resulting in increased spending commitments which are difficult to rescind. These problems with developing countries are intensified by the predominance of resource dependence. Barnett and Ossowski (2002) and Asfaha (2008) have shown that countries that rely on oil and other non-renewable resources for a substantial share of their revenue face certain unique

fiscal challenges: the revenue stream is exhaustible, uncertain, volatile, and largely originates from abroad. This has led to implications that resource-rich developing economies have not performed well relative to their developed counterparts. While this may be true in the case of Nigeria, additional forces may be at work, persistently rendering fiscal stabilization efforts to be weak. The difficulties posed by a volatile, unpredictable, and exhaustible source of fiscal revenue to fiscal management have been compounded in a number of cases by institutional weaknesses and complex political dynamics (IMF, 2007). In reality, however, complex political dynamism tends to hold a more powerful influence on the success and sustainability of fiscal management in Nigeria than the fiscal institutions do. For instance, the Fiscal Responsibility Act was introduced in 2007 to ensure that oil price shocks are not transmitted directly into the Nigerian economy. The essence is to adopt a medium term expenditure framework which should put fairly long term revenue streams into consideration when pursuing current expenditure measures and by using an oil price benchmark in budgetary operations. However, dynamic political factors surrounding Nigeria's fiscal setup have persistently eroded the effectiveness of such framework and have put into serious question the sustainability of the ideals of the Fiscal Responsibility Act.

The *common pool phenomenon* -arises when the various decision makers involved in the budgetary process (legislators, the finance minister, line ministers, etc.) compete for public resources and fail to internalize the current and future costs of their choices (Velasco, 1999) – has a strong impact on the nature of the budget process and the quality of budget outcomes (Dabla-Norris et al, 2010). In the same vein, information asymmetry and incentive incompatibilities between the government and voters and within the government hierarchy (e.g., between the federal and state governments) can also influence the size, allocation, and use of budgeted resources (Dixit, 1998; and Dabla-Norris et al, 2010). Unless regulated by strong institutional arrangements, the common pool phenomenon can result in a "deficit bias" in the form of excessive expenditures, deficits and debt levels (see IMF, 2010). Strong core fiscal institutions can counteract this bias by ensuring that the budgetary consequences of policy decisions are appropriately taken into account. Hallerberg and Wolff (2006) maintain that problems with fiscal discipline can arise from at least two sources: differences between long-run and short-run benefits can induce deficit spending biases if policy makers discount the future more heavily than private consumers, second, differences between the marginal benefit and marginal cost to an individual group in the budget making process lead to a common pool resource problem. Procedural rules of the budget process can be used as a commitment device to reduce this spending bias. The main feature characterizing fiscal institutions can thus be characterized by the degree to which they centralize the decision-making process. Good budgetary process

can reduce the spending bias associated with the common pool problem (Hallerberg, Strauch, and von Hagen 2004, cited in Adegboye, 2013).

Many pundits have documented that fiscal policy has tended to be procyclical in developing countries, in contrast to the observed pattern among industrialised countries that has been by largely countercyclical due to the resource-generated volatility cycles (Gavin and Perotti 1997; Kaminsky et al. 2004; Talvi and Végh 2005). Indeed, many oil-dependent countries, Nigeria included, have fallen victim to boom-bust cycles exacerbated by pro-cyclical fiscal spending due o the oil earnings volatility (World Bank, 2013). Most studies look at the procyclicality of government spending, because tax receipts are particularly endogenous with respect to the business cycle. Indeed, an important reason for procyclical spending is precisely that government receipts from taxes or mineral royalties rise in booms, and the government cannot resist the temptation or political pressure to increase spending proportionately, or more. The specific roles of institutions in coordinating and aligning fiscal policy with macroeconomic stability have also received some attention although most of the studies focus on cross-country analysis (e.g. Frankel, 2011; Debrun and Kapoor, 2010; and Lledo et al, 2009). These studies show effects of fiscal institutions as a determinant of fiscal behaviour in developing countries. They also investigate reasons why budget institutions play a role in shaping the fiscal response to the cycle. The overall implications of the studies give the direction that well-designed and efficiently managed budget institutions enable policymakers to adopt a countercyclical policy stance by reducing the deficit bias, raising awareness about the medium term implications of fiscal policy actions, and by highlighting the need for sustainable policies that ensure macroeconomic stabilization.

II.2.   Empirical Evidence

A number of empirical studies have examined the nexus between fiscal policy actions and macroeconomic stabilisation in developing and developed countries. In particular, these studies sought to investigate the procyclical and countercyclical nature of fiscal policies and the implications for macroeconomic stabilization. These studies are briefly reviewed.

Debrun and Kapoor (2010) examine stabilization policies in OECD and non-OECD countries and observe that "on average, fiscal policy seems to be more countercyclical in OECD countries than in the non-OECD group. The former not only have larger automatic stabilizers but also tend to exhibit a stabilizing cyclical response, although this may reflect greater stabilizers on the expenditure side of the budget. Non-OECD countries appear to have a

proclivity for procyclical policies, as most have negative response of government spending to output variations.

The dominance of procyclical fiscal policies in developing countries and its effect on countercyclical output stabilization has also been widely studied (Gavin and Perotti, 1997; Talvi and Vegh, 2005; Lee and Sung, 2005). In these studies, the occurrence of procyclical fiscal policy is commonly attributed to weak expenditure control mechanism and institutions that precludes governments from saving revenue windfalls during favourable economic fortunes. Weak expenditure control is embedded in ineffective budget procedures, execution and agency problems (in which the electorate puts pressure to spend revenue windfalls on visible items because it does not trust the government— Alesina and Tabellini, 2005), and common pool problems (competing groups fight to obtain a greater share of the resource or any additional revenue—Tornell and Lane, 1999 cited in Adegboye, 2013). Rent-seeking groups and various decision makers also compete for public resources and fail to internalize the current and future costs of their choices on fiscal stabilization (Dabla Norris et al., 2010). Pro-cyclical credit conditions also play a role, as fiscal authorities in developing economies take advantage of easy credit to boost expenditure and are forced to consolidate in bad times—when credit dries out and revenue falls, which combines to make macroeconomic stabilization intractably stubborn. Unless regulated by strong fiscal institutional mechanisms, the common pool phenomenon can result in a "deficit bias" in the form of excessive expenditures, deficits and debt levels, which combine to make macroeconomic stabilization difficult (IMF, 2010). Strong core fiscal institutions can counteract this bias by ensuring that the budgetary consequences of policy decisions are appropriately taken into account

Talvi and Vegh (2005) using a sample of 56 countries, show that fiscal policy in the G7 countries appears to be 'acyclical' while fiscal policy in developing countries is procyclical (i.e., fiscal policy expands during economic expansion and contracts during economic recession). To explain this puzzle, they developed an optimal fiscal policy model in which running budget surpluses is costly because they create pressures to increase public spending. Given this distortion, a government that faces large fluctuations in the tax base – as is the case in developing countries – will find it optimal to run a procyclical fiscal policy.

Lee and Sung (2005) empirically investigate the responsiveness of fiscal policy to business cycles and in particular, relationship between fiscal policy and macroeconomic stabilisation using a comprehensive data set of both 22 OECD countries and 72 non-OECD countries and economic fluctuations in neighbouring countries as an instrumental variable.   Their findings show that

the response of fiscal policy is more significantly counter-cyclical in OECD countries than in non-OECD countries. They also observe that fiscal policy move asymmetrically over the business cycle, especially in OECD countries, implying that budget deficits can grow over the business cycle. However, the results reveal that in non-OECD countries, budget surpluses (fiscal policy) show a significant pro-cyclical response to negative GDP growth rates, but in the case of positive GDP growth rates, budget surpluses shows an insignificant (in OLS estimates) or countercyclical (in IV estimates) response. This finding suggests that governments in developing countries tend to increase their expenditures considerably during booms, thus making stabilization difficult in the economy. Consistent with this result, they find that larger governments spending in advanced countries are associated with lower economic fluctuations, while larger governments spending in developing countries are not.

Sturm, Gurtner & Alegre (2009, cited in Obadan and Adegboye, 2014) provide an empirical analysis on the pro-cyclicality of fiscal policy in oil exporting countries (including Nigeria). In particular, their focus is on the relationship between fiscal management and macroeconomic stabilisation. A heterogeneous panel data series of 19 oil-exporting countries for which data is available for the period 1965-2005 are selected. The sample was split into two sub-periods, 1965-1984 and 1985-2005, the first covering the first two oil price shocks and the second covering the beginning of the recent oil price hike. A dynamic version of the model is estimated through a version of the Generalised Method of Moments (GMM), which includes one lag of the dependent variable to control for serially correlated fiscal policy. The results show a pro-cyclical behaviour of fiscal policy over the whole period 1965-2005, with more pronounced results in the second sub-period. The estimated coefficients are not only larger, but their levels of statistical significance are also stronger. Thus, the empirical analysis confirm that fiscal policy tend to be procyclical over a relatively long period of time, with no signs of declining in oil-exporting countries. This in their conclusion makes macroeconomic stabilization complicated.

Végh and Vuletin (2011) use Vector Autoregression (VAR) model to determine the ability of fiscal policy to stabilize the economy find evidence that tax-rate policy has been mostly procyclical (i.e cut taxes during periods of expansion and raised taxes during periods of recession in developing countries), and acyclical in industrialised countries. The authors in their conclusion aver that procyclical fiscal policy makes stabilisation policies difficult since it does not respond asymmetrically to the business cycle.

Frankel, Vegh & Vuletin (2011) find that fiscal policy is highly procyclical in developing countries and provokes business cycles, making macroeconomic stabilisation intractably stubborn. The reverse is the case in developed countries.

They maintain that the ability of some countries, particularly emerging-market and developing countries, to escape the trap of procyclical fiscal policy is institutions. In this context, Frankel et al.(2011), find that the cyclicality of a country's fiscal policy is inversely correlated with the country's institutional quality which includes measures of law and order, bureaucracy quality, corruption, and other risks to investment.

Adegboye (2013) examine the nexus between fiscal policy, institutions and macroeconomic stabilisation in Nigeria. Efficient fiscal policy should respond asymmetrically to the business cycle by contracting during booms and expanding during recession. The study thus investigates the role of these institutions in either fostering or ameliorating procyclical fiscal policy in Nigeria. Data covering the period 1970 to 2011 are segregated into different sub-periods, including the recent democratic era (1999-2011). The OLS and GMM estimation techniques are used in the empirical analysis to determine the cyclical properties of fiscal policy, the effects of institutions on the cyclical stance of fiscal policy and the countercyclical effort of fiscal policy in Nigeria. The results show the procyclical nature of fiscal management in Nigeria due to weak fiscal institutions. More importantly, the study finds that fiscal dependence is the strongest institutional factor that reacts based on oil price development. This effect is more pronounced during the democratic era – fiscal deficits to income ratio have responded more to state government dependence on the fiscal pool since 1999. He concludes that the existence of weak institutions may heighten voracity in a democratic dispensation, giving more power to the rent-seeking groups in the country. Thus, strong institutions are necessary for macroeconomic stabilisation in Nigeria.

Obadan and Adegboye (2014) investigate whether fiscal policy is procyclical in Nigeria over the period 1981-2009. They employ two set of methodology to analyze the effects of oil price fluctuation and their implications for fiscal policy and macroeconomic stabilization in Nigeria. The first method involves the use of an autoregressive model to estimate a "cyclical fiscal policy," reflecting the systematic response of the cyclically adjusted government expenditure to the business cycle. The second method is the use of Vector Autoregression (VAR) model to determine the ability of fiscal policy to stabilize the economy. The empirical findings reveal that fiscal policy is largely procyclical in Nigeria and that fluctuation in oil price explains the weak fiscal performance and macroeconomic instability in Nigeria.

In examining the fiscal policy options for managing the oil price shock in Nigeria Obadan (2014) finds that exogenous shocks, particularly disturbances from the international crude oil market cause fluctuations (positive or negative) in budgetary revenue receipts of the oil exporting countries, and hence positively

or adversely affect budget performance and macroeconomic stability. He recommends the need for a mechanism to protect the budget against oil market shocks in order to ensure macroeconomic stability in Nigeria.

Tella and Ayinde (2014) examine the relationship between institutions, sustainable fiscal management and macroeconomic stabilisation in Nigeria in the period 1970-2011. They employ a barrage of tests such as the descriptive statistics, threshold parameters, unit-root and co-integration tests to, first, ascertain if fiscal sustainability holds in Nigeria and later employ the Granger causality test and the Ordinary Least Square technique to evaluate relationship among the institutional factors and fiscal sustainability indicators. The empirical results show that fiscal policy is both strongly and weakly unsustainable in Nigeria, making stabilisation complex. The findings further show that policy changes and structural breaks impact significantly on fiscal policies in Nigeria and that fiscal operation of government remains cyclically intoned with changing policies and regimes. According to the authors, in spite of the existence of fiscal rules as enunciated in the Fiscal Responsibility Bill (FRB) and various sections of the constitutions, poor implementation and weak institutions have been found to be strongly responsible for fiscal un-sustainability in Nigeria as institutional factors such as corruption, voice and accountability, rule of law, government effectiveness, political instability and regulatory quality have all generally impact negatively on the indicators of fiscal sustainability such as government debt, overall deficit/surplus and federal government retained earnings.

II.3.   Fiscal Policy and the Government Budget

In the years past, Nigeria has registered consistently high official GDP growth rates and experienced unprecedented momentum in prudent macroeconomic management, economic stability, democracy, and reform. Like most other oil dependent emerging markets, much of the responsibility for managing the risks from oil price fluctuations inevitably falls on fiscal policy. Many oil-dependent countries, including Nigeria, have fallen victim to boom-bust cycles exacerbated by pro-cyclical fiscal spending. Conversely, countries that have transformed the oil curse into an advantage for economic development have managed to implement countercyclical policies that build fiscal buffers during times of high oil prices that can finance stimulus spending in the event of a negative oil shock. The particular nature of federalist relations in Nigeria adds a layer of complexity to this problem, as the Federal Government alone does not have the authority to manage the country's fiscal reserve. This reserve (Excess Crude Account) is under the joint management of the Federal and State Governments. Thus, a political consensus involving a critical mass of Nigerian

States is essential to the realization of responsible fiscal management at the national level.

According to the Nigeria Economic Report (2013), since 2011, the Federal Government has exhibited new momentum for re-establishing countercyclical fiscal policy, pursuing fiscal consolidation, limiting ad hoc distributions of the ECA, and realizing new legislation for the creation of a Sovereign Wealth Fund under institutional rules that may be less vulnerable than the Excess Crude Account to short run political pressures. From very low levels in 2010, the Excess Crude Account accumulated to US$ 4.6 billion at the end of 2011 and US$ 8.6 billion at end-2012. These efforts continue to face political challenges from some Nigerian States, and the replacement of the Excess Crude Account with the Sovereign Wealth Fund has so far been delayed. The high general government deficits in 2009- 2010 have been reduced significantly .Table 1 presents estimates for the General Government Budget of Nigeria, as consisting of Federal and State (Consolidated State and Local) Budgets, Extra-Budgetary Funds, deductions for financing the fuel subsidy (executed from oil revenues before distribution to budgets), and changes in the fiscal reserve position. Given uncertainties over data, some of the estimates in Table 1 should be understood as approximations from only indirect calculations. This particularly concerns estimates for consolidated State and local budgets, as there is still no implementation of uniform accounting standards and data collection that could provide a full data collection that could provide a full scenario of the consolidated budget execution in the country.

Table 1. The General Government Budget of Nigeria: 2008-2012 (Shares of GDP)

2012	2008	2009	2010	2011	2012
Government Revenues	30.2	19.4	22.6	22.5	22.6
Federal	11.0	9.7	9.9	8.3	7.7
States	12.2	11.8	11.7	10.0	9.4
Extra Budgetary Funds	1.1	1.9	1.5	1.4	1.7
Deductions for Fuel Subsidy	2.6	1.7	2.2	4.6	2.7
Net Accumulation to ECA	3.4	-5.7	-2.7	1.2	1.3
Expenditures					
Federal	10.7	11.0	13.5	10.9	10.0
States	11.2	11.4	11.2	10.8	10.2
Extra Budgetary Funds	1.1	1.9	1.5	1.7	1.7
Fuel Subsidy	2.6	1.7	2.2	4.6	2.5
Balance					
Federal Budget	0.3	-1.3	-3.5	-2.6	-2.4
State Budgets	1.0	0.4	0.5	-0.8	-0.8

| Consolidated Federal and State | 1.3 | -0.9 | -3.0 | -3.4 | -3.2 |
| General Government | 4.7 | -6.6 | -5.7 | -2.2 | -1.9 |

Note: General Government includes Federal, State, and Local Budgets, Extra-Budgetary Funds, Fuel Subsidy Payments, and Net Accumulation to the ECA.
Source: (Nigeria Economic Report, 2013).

The general government deficit widened significantly in 2009-2010. As indicated in Table 3, the Government budget in Nigeria was in surplus by an estimated 4.7 percent of GDP in the year of 2008, but then edged up to a deficit of 6.6% in 2009 following the decline in oil prices. This deficit in 2009 was financed primarily by the Excess Crude Account (5.7% of GDP or US$ 12.6 billion). In 2010, the General Government deficit remained high at 5.7% of GDP, despite the recovery in oil prices, due almost entirely to strong increases in federal expenditures that were financed by a higher federal deficit (borrowing) and a further drawdown of the Excess Crude Account that almost completely depleted its balance by the end of the year. Fortunately, the year 2011 brought much needed progress toward consolidation. In 2011, actual federal expenditures grew by less than 7 percent in nominal terms, representing a decline of 1.8 percent in real terms. The progress toward general government consolidation in 2011 would have been much more dramatic had it not been for a mushrooming of Government fuel subsidy payments that reached 4.6% of GDP, and understandably became the focus of a major scandal in the country. In 2012, the Government succeeded in reducing fuel subsidy expenditures through a reduction in the subsidy rate itself and a crackdown on corruption, while continuing progress toward real expenditure compression and deficit reduction. The preliminary estimate of the general government deficit for 2012 was 1.9% of GDP, representing continued progress in consolidation despite lower-than-expected Government revenues. The draft 2013 Federal Budget and Medium Term Fiscal Framework propose even further consolidation; however, there are significant risks to this picture coming from oil price uncertainty, as well as political issues/conflicts that could affect the size of fuel subsidy payments and the ability of the Government to accumulate surplus revenues in its reserve.

Following the Paris Club restructuring, Nigeria still has a strong debt position that can be used to meet some of the possible BOP and budgetary challenges described above in the short and medium term. External sovereign debt remains less than 3% of GDP, while domestic debt has reached about 16%. The recent rapid growth of domestic debt and rising domestic borrowing costs has prompted the government to plan a reduction in domestic borrowing. Correspondingly, the 2012 Debt Sustainability Analysis conducted by the Debt Management Office recommends a shift from domestic to external sources of borrowing, specifically stating that 60 percent of borrowing requirements for

2013 be raised from external sources while only 40 percent of financing should be sourced from the domestic market. External borrowing is indeed potentially much cheaper for Nigeria at present, although two important issues still need to be considered in that regard. First, Nigeria's open foreign currency position is critical to stabilization and protection against oil price volatility. This is a reason why it can still make financial sense for Nigeria to accumulate resources in its fiscal reserve (Excess Crude) account at the same time that it is borrowing domestically in naira. Second, given remaining weaknesses in the Nigerian banking sector in the aftermath of the banking crisis of 2009, it is important that Nigerian banks have access to a sufficient supply of Government securities to balance the risks in their portfolios (Nigeria Economic Report, 2013).

Iyoha (2004), avers that many African countries (including Nigeria) especially those that have relatively large external sectors are extremely vulnerable to the adverse effects of negative external shocks. Countries which depend heavily on exploits of primary products are particularly susceptible to these external shocks on account of instability of world commodity prices and hence in their export revenues. Government revenues in Nigeria have generally mirrored unstable global conditions with fluctuations in fiscal balances being synchronized with world trade cycles. It is a well-known fact that exogenous shocks, particularly disturbances from the international crude oil market cause fluctuations (positive or negative) in budgetary revenue receipts of the oil exporting countries, and hence positively or adversely affect budget performance and macroeconomic stability. For instance, oil price instability seems to have been transmitted into output instability in Nigeria. Hence, the need for a mechanism to protect the budget against oil market shocks and ensures macroeconomic stability.

Given the weak revenue base in African countries including Nigeria, and the hostile international environment from commodity export dependence, the challenge is basically how to ensure prudent fiscal management reflected in fiscal discipline through the curtailment of excessive and unproductive expenditures and deficits without compromising long-run development prospects. In this wise, the problem will be how to maintain the quality of fiscal management over the long-term and ensure that the techniques of raising public revenue and allocating public expenditure growth that will ensure self-sustained growth. Gray and Linn (1988) cited in Iyoha (2004) suggest five broad ways in which developing countries (including Nigeria) could reform public finance to achieve fiscal and macroeconomic stabilization, to include;
(i)   adopt prudent budget policies;
(ii)   reduced the costs of raising revenue;
(iii)   increase the efficiency and effectiveness of public spending;
(iv)   strengthen the autonomy and accountability of decentralized public entities, and

(v)   ensure consistency between public finance and poverty alleviation
         goals.

Thus, effective and efficient fiscal management for countercyclical stabilisation would entail sound and prudent budgetary policies, increased revenue mobilization, efficient and effective tax policies and administration, re-prioritization of expenditure in line with budget constraints and growth generating capacity, elimination of wastes and corruption from public spending and procurement through the strengthening of fiscal institutions, e.t.c.

II.4.   Fiscal Discipline in the Context of Operation of the Excess Crude (ECA) Account/Sovereign Wealth Fund (SWF)

Oil funds represent an institutional response to stabilization and savings concerns relating to oil price/earnings volatility, especially when there are strong political pressures to increase spending (Davis, Ossowski and Fedelino, 2003). Obadan (2014) notes that objective of stabilization funds is to minimize the transmission of oil price volatility to fiscal policy by smoothing budgetary oil revenue. Savings funds aim at addressing intergenerational concerns. Nigeria's Excess Crude Account (ECA) and Sovereign Wealth Fund (SWF) are examples of oil funds. The desirability of an ECA and SWF in Nigeria is not in doubt considering the strong political pressures to increase public spending and the fact that oil is a non-renewable asset that is exhaustible. In particular, are the implications of oil price volatility for of macroeconomic stability. It is therefore crucial to curtail the impact of the boom-bust cycle of oil and manage windfalls prudently in the context of an Excess Crude Account/Sovereign Wealth Fund. A number of countries have been successful in managing stabilization funds or non-renewable resource funds, among which are Norway, Chile, Kuwait, Botswana and the United States (State of Alaska) tagged 'Addressing intergenerational concerns'. Nigeria's ECA and SWF are examples of stabilization funds. The Nigerian government established the Excess Crude Account (ECA) in 2004 following the introduction of the oil-price based fiscal rule in 2003. The ECA is used to save oil revenues (precautionary savings) above a defined benchmark oil price. As a commendable policy action, the ECA primary objective is to protect planned budgets against shortfalls due to volatile crude oil prices. By delinking government expenditures from oil revenues, the Excess Crude Account aims to insulate the Nigerian economy from externally generated shocks and ensure macroeconomic stabilization. Analogous to the ECA is the Sovereign Wealth Fund (SWF), a savings mechanism, which is derived from the Nigeria Sovereign Investment Act, 2011 (May). A part of the oil earnings above the budget benchmark price is deposited in the SWF and it is expected to be invested to earn returns for the benefit of future generations of Nigerians. The Fund was allocated an initial $1.0 billion as seed capital. This amount has

been distributed into the three components of the SWF, namely: Stabilization Fund (to safeguard against budgetary deficits) ($200.0 million); Future Generation Fund (for investment in long-term assets for future generations) ($400.0 million); and Nigeria Infrastructure Fund (to secure investment in the infrastructure development of the country) ($400.0 million). The SWF appeared to have been well-managed in its short period of existence; it is reported to have made a net profit of N525.0 million in 2012/2013. In contrast, the Excess Crude Account has generally been very poorly managed and misused, making stabilization effort difficult (Obadan, 2014).

Table 2 shows selected economic indicators linked to oil and fiscal management

Table 2. **Selected Economic Indicators**

Indicators	2008	2009	2010	2011	2012
GDP Growth (%)	5.98	6.96	7.98	7.43	6.68
Oil GDP	-6.08	-0.5	4.58	0.14	-0.7
Non-Oil GDP	8.95	8.3	8.49	8.8	7.89
Inflation Rate (CPI Average)	11.6	12.5	13.7	10.8	12.2
General Govt Fiscal Deficit* (% of GDP)	4.7	-6.6	-5.7	-2.2	-1.9
Federal Govt Fiscal Deficit(% of GDP)	0.3	-1.3	-3.5	-2.6	-2.4
Gross Monetary Reserve ($b) in months of import cover	53.0	42.4	32.3	32.6	46.0
Sovereign Debt (% of GDP)	11.6	15.4	15.3	17.1	18.4
External Debt	2.2	2.4	2.0	2.3	2.5
Domestic	9.4	13.0	13.0	14.8	15.9
*Includes Federal, States, Local Extra-Budgetary Funds, Fuel Subsidy, Net Accumulation to ECA					

Source: Nigeria Economic Report (2013)

II.5.   Review of Fiscal Management Trend in Nigeria

Given that state governments have a considerable ability to conduct a stabilising fiscal policy - especially in a federal system- (Gavin and Perotti, 1997), it is important to have an idea about the size and evolution over time of state governments in the country. There are many possible dimensions along which the issue can be analysed. In order to have a more robust and reflective analysis, the study focuses on three periods: Pre-SAP period, the SAP era and the Post- SAP era. Table 3 reports overall averages of the main aggregates. Given the table, it is easily evident the small shares of each of the components in GDP. For instance, the share of total expenditure of states in GDP for the two sub periods after SAP was very low when compared with that of the federal government for the corresponding periods. While the shares were 18.8 and 15.8 percent, respectively for the federal government, it was 6.12 and 9.07 percent,

respectively for the state governments. This shows the dominance of the central government in fiscal operations in Nigeria (a non-reflection of true fiscal federalism). The share of state government spending in GDP, however, increased by about 3 percent during the democratic era, perhaps, due to growing pressure from the states to get more access to the national pool. This outcome tends to give credence to the argument that voracity may heighten in democratic settings where institutions are weak and the component groups are relatively powerful (Lane and Tornell, 1998; Elbadawi and Soto, 2012; and Torvik, 2012, cited in Adegboye, 2013).

The ratio of state government expenditure to federal government expenditure actually fell by 26 percent between the 1970-1986 periods and the 1987-1998 periods. This shows that federal government did most of the fiscal participation during the period immediately after SAP. This gap fell drastically during the democratic era as the ratio increased by as much as 35 percent over the previous period. This reflects very clearly the move towards decentralization in Nigeria's fiscal policy. Indeed, the judicial injunction in 2003, compelling the fiscal authorities to share excess oil revenue between the states and the federal government gave the state governments a better leverage in which to participate in fiscal operations. The ratio of state revenues to total revenues has declined over the years. The ratio dropped by 7.4 percent during the 1999-2014 periods when compared with the previous period. The fiscal autonomy ratio (Jimoh, 2003) has not improved in the democratic era. It is inevitably clear state governments in Nigeria have increasingly relied on transfers from the central government to finance their increasing fiscal operations. On the other hand, the ratio of capital expenditure to total own expenditure of states seems relatively impressive and steady over the years as the figures in the table show. This is an indication that a large portion of total expenditure of states has been devoted to capital spending.

Table 3: State Government Fiscal Applications (Value %)

	1970-2009	1970-86	1987-1998	1999-2014
Own fiscal balance/GDP	-2.64	-5.61	-0.39	-0.41
Total own expenditure/GDP	10.0	12.9	6.12	9.02
State govt. Expenditure/ Fed.govt total expenditure	53.1	59.0	32.3	65.4
State govt. Own revenue/State govt. Total revenue	17.8	19.8	19.3	11.9
Capital expenditure/total own expenditure	39.6	42.0	36.4	37.1

Source: Author's compilation (2016)

The foregoing analysis generally indicates an unimpressive rate of macroeconomic growth in the country over the years, and its critical link to development in the oil sector. Moreover, fiscal operation has been identified to be particularly dependent on oil revenue inflow. This situation has effectively relegated the non-oil sector to the background in terms of fiscal attention. Fiscal volatility is widespread over the period of the data analysis and this has caused fiscal expenditures to be unstable and difficult to track.

II.6.   Fiscal Policy in Developing Countries: Escape from Procyclicality

Developing countries (including Nigeria), tend to adopt procyclical fiscal policy. They increase spending (or cut taxes) during periods of expansion and cut spending (or raised taxes) during periods of recession. This pattern of fiscal policy makes macroeconomic stabilization difficult since it is not asymmetrical to business cycles. Many authors have documented that fiscal policy has tended to be procyclical in developing countries, in comparison with a pattern among industrialised countries, that has been by and large countercyclical (Gavin and Perotti 1997, Kaminsky et al. 2004, Talvi and Végh 2005, Mendoza and Oviedo 2006, Alesina et al. 2008, and Ilzetski and Végh 2008, cited in Frankel et al., 2011). These studies in examining the procyclicality of government spending have also shown that tax receipts and oil revenues are particularly endogenous with respect to the business cycle. Indeed, an important reason for procyclical spending is precisely that government receipts from taxes or mineral royalties in resource-dependent economies rise in booms, and the government cannot resist the temptation or political pressure to increase spending proportionately, or more (Frankel, Vegh and Vuletin, 2011). This same pattern can be found similar on the tax side by focusing on tax rates rather than revenues, though cross-country evidence is harder to come by.

Kaminsky et al. 2004 examine the correlation between government spending and GDP in 94 countries over the period 1960-1999. In particular, it shows the correlation between the cyclical components of spending and GDP with the longer-term trends taken out. The set includes 21 developed countries, and 73 developing countries. A positive correlation indicates government spending that is procyclical, i.e. destabilising. A negative correlation indicates countercyclical spending, that is, stabilising. The empirical results show an overwhelming evidence that over 90% of developing countries have positive correlations (procyclical spending). The findings also show that 80% of industrial countries show negative correlations (countercyclical spending). The conclusion of the authors is that policy makers generally pursue procyclical fiscal policy, the undesirability of a pattern under which government response exacerbates the amplitude of the business cycle. This according to the authors is due to either imperfect access to credit or political distortions.

II.7   The Shift in Cyclicality

In recent times, there has been a historic shift in the cyclical behaviour of fiscal policy in the developing world. Findings by Frankel, Vegh & Vuletin (2011) show that around 35% of developing countries-26 out of 73 show a countercyclical fiscal policy, more than quadruple the share during the earlier period. Using correlations between government spending and GDP for 2000-2009 data for a scatter plot and comparing it with the 1960-1999 correlation, the results indicated show that the number of graduates from procyclical to countercyclical fiscal policy has risen due to macroeconomic stabilisation policy measures adopted in the face of deep fluctuation in oil price. According to Franke et al. (2011) the evidence of counter cyclicality among many emerging-market and developing countries matches up with other criteria for judging maturity in the conduct of fiscal policy, such as debt/GDP ratios, rankings by rating agencies, and sovereign spreads. Low income and emerging market countries in the aggregate have achieved debt/GDP levels around 40% of GDP over the last four years. The IMF estimates the 2011 ratio at 43% among emerging market countries and 35% among low-income countries. This is the same period during which debt in advanced countries rose from about 70% of GDP to 102%. The financial markets have ratified the historic turnaround. Spreads are now lower for many emerging markets than for some "advanced countries." Largely as a result of their improved fiscal situations during the period 2000-2007, many emerging markets are able to bounce back from the 2008-2009 global financial crisis more quickly than advanced countries (Didier et al. 2011). It is demonstrated that oil revenue moves ahead of output and that output volatility follows the movements in oil revenue volatility with a little lag. Since this pattern of relationship exists, stabilising the domestic economy becomes a daunting task because external factors (that are largely exogenous) exert remarkable influence on the economy. Moreover, the use of fiscal policy becomes difficult since in Nigeria, supply shocks from unstable oil revenues continue to distort fiscal operations. Invariably, oil price instability seems to have been transmitted into output instability in Nigeria. (Adegboye, 2013).

II.8   Fiscal Policy, Institutions and Output Stability

In examining the nexus between, fiscal policy, institution and output stability, two critical issues are investigated in the empirical analysis. First the study demonstrates that fiscal outcomes are procyclical in Nigeria based on the oil boom-bust cycles, and then countercyclical in terms of macroeconomic stabilisation. These measurements particularly follow Lane and Tornell (1998) voracity arguments for fiscal procyclicality in resource-rich countries. According to these authors, economic and fiscal performance could be undermined when there are powerful groups, especially in a system with weak institutional barriers

to discretionary redistribution. This is because the 'non-cooperative powerful groups generate a redistribution struggle' which often ends up in wasteful and inefficient use of the resources. In the same analysis, the researchers show that a reduction in power concentration through increasing the number of powerful groups would ensure better economic performance. The study to provides empirical tests for these arguments for the Nigerian case. In Table 3, the descriptive statistics for output and budgetary forecast errors in output and fiscal deficit between 2003 and 2014 are reported.

The standard deviations for forecast errors are higher than those of actual outcomes in both deficits and output. This suggests weakness in fiscal or budgetary applications in the country.

Table 4: Errors in Forecasting Budget Deficits (official forecast – actual) expressed as % of GDP and Output Growth Rate for 2003 to 2014

	Actual Outcomes		Budget Forecast Errors	
	Budget Deficit (% of GDP)	Output Growth (%)	Budget Deficit (% of GDP)	Output Growth (%)
Mean	1.92	6.58	-0.27	-0.75
Max	3.5	7.92	-1.9	-3.5
Min	0.36	5.1	2.31	1.77
Std	1.19	0.76	1.27	1.62

Source: Authors computation (2016)

III.0.   METHODOLOGY AND MODEL SPECIFICATION

III.1.   Model Specification

There exists evidence of fiscal procylicality behaviour of government fiscal stance in Nigeria. The methodology involves the use of an autoregressive model to estimate a "cyclical fiscal policy," reflecting the systematic response of the fiscal balance to the business cycle. A major indicator of fiscal performance used in literature is the relationship between fiscal policy and business cycle.

Procyclicality of fiscal policy is considered as an indicator of poor fiscal policy whereas countercyclical fiscal policy indicates better fiscal management. Here, a measure of cyclicality of fiscal policy is constructed following Alesina and Tabellini (2005), who in turn adapt Gavin and Perotti's (1997) specification.

In measuring the responsiveness of fiscal policy to the business cycle, it is important to note that fiscal policy and GDP can be endogenously correlated ((see Lee and Sung, 2005); there is therefore need to estimate the output gap from its long-run trend. In order to overcome the problem of this joint endogeneity in the estimation and, thus to control for the biases resulting from simultaneous or reverse causation, the study adopts the generalised method of moments (GMM) approach in the estimation. As maintained by Debrun and Kapoor (2010), the effectiveness of fiscal policy entails reverse causality from government spending to output, thus introducing a downward bias in OLS estimation of β. To remedy this potential bias, the study introduces an instrumental variable (lagged output growth gap) in the estimation to represent the output cycle (see Fatas and Mihov, 2003 and Alesina and Tabellini, 2005). OPN_t is a measure of trade openness and account for the openness of the domestic economy to trade and the subjection of the economy to internationally transmitted and generated shock arising forth. The introduction of this variable will help to eliminate omitted variable bias in the model (Adegboye (2013). In estimating the output stabilisation model, fiscal and institutional factors have extensive effects. In using the GMM method, the paper identifies instruments as the lags of the fiscal outcomes. This is akin to estimating an instrumental variables regression model using GMM (demonstrated in Cambell and Mankiw, 1990, cited in Adegboye).

In order to examine a more systematic relationship between fiscal policy and output stabilisation (macroeconomic stabilisation), the study specifies the stylized output gap function

ΔRGDP= f (FP, X)………………………………………………. (1)

Where ΔRGDP = Change in Real GDP- a measure of economic growth/transformation, FP = fiscal policy (measured as overall fiscal balance to GDP ratio); and X is a vector of macroeconomic and intermittent variables according to the literature, that affect the fiscal management-stabilization nexus. The inclusion of these variables is to include, as much as possible critical variables that impact on the assumed relationship, and thus avoid omitted variable bias. These variables include;
YGAP (real output gap- a measure of the business cycle, i.e., real output growth gap);

OPN = trade openness- to account for the effect of domestic trade openness on the economy;

INST = measure of institutional quality; and

INF= inflation rate

On the inclusion of these variables, the functional form of the model is re-specified as:

ΔRGDP = f(FP, YGAP, OPN, INST, INF)………………………. (2)

The variables FP and I are likely to be contemporaneously correlated with ε_t and so the least squares estimates of δ are likely to be biased and inconsistent. Because (ε_t, S_t) is a stationary and time-invariant $E[\varepsilon_t \mid S_{t-1}] = 0$ (see Green, 2004). This implies that any variable in S_{t-1} is a potential instrument. Furthermore, for any variable $x_{t-1} \subset I_{t-1}$ is a potential instrument, {x_{t1-} ε_t} is an uncorrelated sequence. The instruments are therefore, the lags of each of the institutional variables.

Therefore, the proposed model above is re-expressed in the following form:

$RGDP_{2i, t}= a_0 RGDP_{2i, t-1} + a_1 x_{i,t} +\mu_{,it} +\varepsilon_{i,t}$..

The term lagged real GDP gives rise to an autocorrelation problem. To solve it, Arellano and Bond (1991) use the general method of moments (GMM) approach to estimate the above equation by firstly differentiating the model. Consequently, the effects $E(\varepsilon_{i,t} - \varepsilon_{i,t-1})$ are removed . However, ($RGDP_{2i\ t}$ -$RGDP_{2i,\ t-1}$) still depend on ($\varepsilon_{i,t} - \varepsilon_{i,t-1}$) .Therefore, lags of the first-differentiated lagged dependent variable are instrumental in solving the problem.

The empirical specification of the model to be estimated is therefore:

ΔRGDP=, $a_0 + a_1 \Delta FP_t + a_2 YGAP_t + a_3 OPN_t + a_4 INST_t + a_5 INF_t + \varepsilon_t$………………………. (3)

Where RGDP, FP, YGAP, OPN, INST and INF are as earlier defined.

t subscripts denote years

The *a priori* expectations are (a_1, a_3, a_4) > 0, and (a_2 a_5) < 0.

$a_0 – a_5$ are parameters to be estimated and ε_t is the unobserved error term.

III.2.   Sources of Data and Method of Data Analysis

Data used in this empirical analysis are annual time series data covering the period 1980 to 2014. All the data are sourced from the CBN Statistical Bulletin. Ordinary Least Squares (OLS) and Generalised Method of Moments (GMM) estimation techniques are used in the empirical analysis to determine first, the cyclical properties of fiscal policy, and then, the countercyclical (stabilization) efforts of fiscal policy in Nigeria.

IV.0.   EMPIRICAL RESULTS AND ANALYSIS

In what follows, we present and analysed first, the baseline empirical results for evaluating fiscal procyclicality (tendency of expenditure to rise when output is

increasing or fall when output declines) before presenting the stabilization model using GMM.

The real output growth is seen to be positive and almost unity for the period. It is significant at the 1 percent level. The positive coefficient indicates that fiscal deficit rises when output rises and falls during output downturn. This implies a highly procyclical fiscal stance of government for the entire period which intensified during the period. The coefficient of fiscal stance indicator is positive for the period, suggesting that government tends to demonstrate fiscal indulgence during that period. This pattern of fiscal behaviour during the period may be justified on grounds that the government took procyclical fiscal actions in these years, particularly during the era of increased oil earnings and the less concentration of fiscal power arising from increased pressure from states, which exacerbated fiscal procyclicality. The procyclicality of fiscal policy in Nigeria can be further shown when, it could be recalled that following the crash in oil price in 2009, the federal government reduced the oil price benchmark for the 2009 budget proposal from $62 to $45, necessitating a 30 percent reduction in planned spending. In the same vein, a reduction of the oil price benchmark for the 2016 budget from $45 to $38 has also necessitated a cut in projected government spending for the fiscal year. In particular, for the 2009 period, actual revenue fell short of budgeted revenue by 15.64 percent, necessitating a cut in actual expenditure of the budgeted expenditure by 14.15 percent (from N3.58 trillion to N3.05 trillion). The government's ability to respond to the consequences of oil price volatility (as is presently the case) is therefore seen to have been rather weak, since fiscal policy is highly procyclical in Nigeria.

Table 5. Cyclical Properties of Fiscal Policy (1980-2014
Dependent Variable: Overall Fiscal Balance

Variable	Coefficient	t-ratio
Real Output Growth Gap	0.9621 **	2.202
Openness	0.172*	1.931
Lag of overall fiscal Balance	0.234*	1.865
R^2=0.7514 Adjusted R^2=0.71	F-test=11.2	DW Statistic= 1.71

(*) denotes significance at 1% (5%) percent level.
 Source: Authors' computation using Eviews

Table 6. Fiscal Policy and Output Stability GMM (Estimates)

Dependent Variable is RGDP			
35 observations used for estimation from 1980 to 2014			
Variable	Coefficients	T-Ratios	Prob.
C	1.1519	1.1150	0.18
Lagged RGDP	0.1140	1.8210	0.09
LnFP	0.2877	2.3511	0.02
LnYGAP	-0.1564	-2.215	0.03
LnOPN	0.3312	1.946	0.09
LnINST	0.19142	1.431	0.15
LnINF	-0.0156	-2.427	0.015

Source: Author's calculations using E-views Econometric Software

An examination of the results reported in table 6 show that all variables have the correct signs. Given the empirical results, it can be observed that the coefficient of lagged growth rate of real GDP has the correct positive sign and is significant at the 10 percent level. This implies that previous macroeconomic stabilisation could act as a springboard for future stabilisation in Nigeria, implying some level of persistence in macroeconomic stabilisation and in Nigeria, particularly in the face of sound fiscal management. Since all the data are in log form, the coefficients are elasticities. The coefficient of lagged growth rate of real GDP of 0.16 therefore implies that a 10 percent increase in previous growth will stimulate future economic growth in the succeeding year by 2 percent. The coefficient of fiscal policy (fiscal management) is positive. This invariably implies that sound fiscal management/fiscal discipline has a stabilising and growth-enhancing effect. The coefficient of output gap (YGAP) has a negative sign and it is also significant at the 5 percent level. Thus, increased output gap resulting from oil price fluctuation tends to destabilize fiscal operation, and as the result has a destabilizing effect on macroeconomic stabilisation and economic growth. Given this, result, it is seen that expansionary fiscal policy–by increasing the fiscal deficits- tends to widen the fiscal gap. Thus, fiscal policy is highly procyclical in Nigeria-increased spending (or cutting of taxes) during periods of expansion and cut spending (or raising taxes) during periods of recession.

In particular, there is empirical evidence that fiscal policy does not respond asymmetrically to the business cycle. Invariably, fiscal deficit rises when output rises and falls during output is at a downturn. This implies a highly procyclical fiscal stance of government for the entire period with intensifying capacity. The coefficient of openness is positive and only passes the significance test at the 10 percent level. This is consistent with the trade theory that openness of the domestic economy to trade, investment and production capacities can stimulate higher growth through greater integration into the global economy,

better resource allocation, and greater competition. This must, however, be complemented with sound institutional framework because in open economies, as in the case of oil exporting countries, output is more prone to terms of trade shocks, but when institutions are sufficiently strong to ensure that ex post distributions follow the "rule of law" rather than opportunistic grabs by social groups, the severity of the shocks might not play a role in determining the overall performance of an economy (Rodrick, 1999). The coefficient of institutions is positive but not significant at the 5 percent level, implying that fiscal and political institutions have positive impacts on macroeconomic stabilisation but the effect has been weak (i. weak fiscal stabilisation mechanisms) which has made stabilisation efforts difficult, possibly on account of the 'voracity effect and rent-seeking behaviour of powerful political group with vested interest in Nigeria.

Finally, the coefficient of inflation is appropriately negative in line with economic theory and is significant at the 5 percent level. This implies that high inflation rates militate against macroeconomic stabilisation and rapid economic growth. This destabilizing effect of inflation on growth is corroborated by the findings of Alesina and Tabellini (2005). In fact, theory and evidence suggests that low inflation rates is crucial for macroeconomic stability and long-term growth, as no country has achieved sustained high growth in a persistently high inflation environment.

V.0   CONCLUSION AND POLICY RECOMMENDATIONS

This study has examined the relationship between fiscal policy management and macroeconomic stabilisation in Nigeria, particularly against the backdrop that stabilisation effort has been intractably stubborn over the years due to the procyclical nature of fiscal policy exacerbated by shocks in global economy, voracity effects, and an overbearing dependence on Volatile Oil market. Ordinary least squares (OLS) and Generalised Method of Moments (GMM) estimation techniques are employed to determine first, the cyclical properties of fiscal policy, and then the countercyclical (macroeconomic stabilisation) effort of fiscal policy in Nigeria. Empirical results show that fiscal policy tends to be largely procyclical in Nigeria, in which government revenues and expenditures rises during period of oil boom (economic expansion) and falls in period of output contraction (economic lull). The issue is also found to be persistent and self-reinforcing. The possible explanations for such fiscal policy behaviour in a resource-dependent country like Nigeria are discernible.

 First, is the very dependence of fiscal policy and management on oil revenue, combined with the shocks in the world economy. Essentially, rising and falling oil prices are usually associated with periods of global economic boom and bust

when most oil importers experience increases and decreases due to increase and falling industrial production and demand. Such international economic booms and bust and the resulting impulses are often transmitted to Nigeria. This reflects the procyclical nature of fiscal policy in Nigeria. For instance, in recent times Nigeria's fiscal and external vulnerability has worsened due to a sharp fall in oil revenue and fiscal and monetary adjustments that are too slow to take shape and insufficient to mitigate the impact of low global oil prices, thus making macroeconomic instability interactable.

Second, is the 'voracity effect' explanations based upon political-economic interactions that explain overspending of transitory shocks or increases in fiscal revenue. In Nigeria, this is more a problem of the pattern of fiscal federalism and claims to resource sharing. As a result, fiscal resources (oil revenue) may be wasted rather than being saved in the form of precautionary reserves in case of likely fall in revenue in future in the future (Obadan and Adegboye, 2014).

Third is liquidity effects where consistent liquidity and credit constraints can generate procyclical fiscal policy. The ability to absorb unanticipated cash flow shocks depends on the robustness of the government's financial position (Bjerkholt, 2002, cited in Obadan and Adegboye, 2014). Reserves accumulation can help in ensuring macroeconomic stabilization during fiscal booms.

Against the backdrop of those findings, the following policy recommendations are made:

(i)   Fluctuations in oil price caused by external shocks as a result of the vagaries in the international oil market can result in macroeconomic instability (maladjustment) unless effort is made through sound countercyclical fiscal policies.

(ii)   Diversification of the productive base of the economy in other to wean it off the volatile influence of an overbearing dependence on oil export and the associated internationally generated and transmitted shocks which makes macroeconomic stabilisation intractably difficult. Government and private sector should aggressively promote economic complexity and diversity through growth enhancing sectoral policy.

(iii)   Strong fiscal institutional framework to ensure countercyclical fiscal performance.

(iv)   Control of government fiscal actions, particularly policies that will ensure a prudential course of spending and revenue generation in

order to ensure more sustainable fiscal policy and output growth patterns that is capable of absorbing and adjusting to output shocks, thereby ensuring stabilization.

(v)   Implementation of sound and stable macroeconomic policies, particularly with respect to output growth, low level of inflation, minimum fiscal deficits to GDP ratio and other ancillary stabilisation and growth-enhancing policies.

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BOOK REVIEW

TITLE OF BOOK: Public Debt Management: Theory & Application

AUTHOR OF BOOK: Samuel Edorisiagbon Omoruyi

BOOK REVIEWER: Professor Milton Iyoha

Public Debt Management: Theory & Application is an outstanding book written by Sam Omoruyi, an erudite scholar, an indefatigable researcher, an iconic teacher, a brilliant macro-econometrician, an international Consultant on public debt management, a former Director of Debt Management Department of the Central Bank of Nigeria and the incumbent Debt Management Advisor of the West African Institute for Financial and Economic Management (WAIFEM). This book presents in its 20 chapters and 379 pages a compendium of over 30 years of systematic research and practical experience in public debt management by Mr. Samuel Edorisiagbon Omoruyi. It is therefore a treasure trove and veritable repository of theoretical postulations, technical analyses, case studies and practical wisdom in the esoteric field of public debt management.

The timing of the publication of this book on *Public Debt Management: Theory & Application* could not be more apt or propitious. Sovereign debt crises are now occurring everywhere, even in the advanced countries of Western Europe. They are even more frequent in the developing countries of Latin America, Asia and Africa. International conferences are routinely held on how to deal with the problems of HIPC and SILIC countries. Sovereign debt crises, triggered by high and unsustainable debt burdens and mounting debt service obligations, have a deleterious effect on economic growth and development. Hence, mastery of the techniques of effective debt management is now a *sine qua non* for macroeconomic policymaking especially in developing countries. This book contains analysis of debt burdens, debt Laffer curve analysis, and debt

sustainability analysis. As such, it is a treasure trove of appropriate policies and strategies for any contemporary debt laden country

Sam Omoruyi's tome on *Public Debt Management: Theory and Applications* contains both theoretical expositions and empirical presentations. Chapters 1 through 6 which constitute Part I of the book give a digestible and comprehensible introduction to the arcane subject of public debt management. Part I provides definitions of key concepts, a treatise on the evolution of sovereign debt crises, an overview of debt management issues, and a brilliant discussion of the nexus between public debt management and macroeconomic policymaking in contemporary economies. Chapters 7 through 10, which comprise Part II of the book, are concerned with "Institutional Arrangements". In these 4 chapters, Sam Omoruyi elaborates on the institutional arrangements for public debt management today. In particular, the author discusses the framework for effective public debt management and sources of financing external debt. He also expatiates on the increasingly popular institution of government debt management offices in developing countries and their presumptive debt management functions. Part III of this book has 10 chapters, that is, chapter 10 through chapter 20, which dwell extensively on issues of public debt management. Apart from exhaustively discussing the important theoretical issue of "debt overhang," the author also focusses on the controversial issue of debt relief. Related to this central topic are the issues of debt rescheduling and the protocols associated with negotiation with creditor organizations like the Paris Club and the London Club. This section also deals with the issue of loan evaluation (that is, how to correctly assess the terms and conditions of various loans) and most importantly, the issue of public debt sustainability. The author explains the concept of the "Yield Curve" in chapter 20 and gives a "Glossary of Concepts" in the Appendix as a bonus. Under this topic, the author defines and explicates all the important concepts relating to public debt management, international lending institutions and the architecture of international finance.

It is no surprise that this *magnum opus* on *Public Debt Management: Theory and Application* was written by Samuel Edorisiagbon Omoruyi, whose monumental achievements and progress I have monitored over the years. This book undoubtedly provides an excellent addition to the extant theoretical and empirical expositions on public debt management in Nigeria and other developing countries. I highly recommend the book to all -- not only to students and academicians but also to all those interested in the development and sustainable growth of Nigeria and other WAIFEM countries. A veritable *tour de force*, Sam Omoruyi's book makes an immense and immeasurable contribution to the increasingly important field of public debt management and should be compulsory reading for students and experts in this field and policy makers in all ECOWAS countries.

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