

## **Sectorial Performance and Inclusive Growth in Nigeria (1990 – 2013): An Assessment**

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**Abstract:** This work assessed sectorial performance on inclusive growth in Nigeria for the period 1990 – 2013. The study was necessitated by the fact that the economy is often said to be growing but such growth is not inclusive in the real sense of it. Many Nigerians are still living below the poverty line. The study made use of secondary data in its analysis. Six explanatory variables (Agricultural Sector GDP, Oil and Gas GDP, Telecommunication sector GDP, Manufacturing sector GDP, Financial institutions sector GDP and electricity sector GDP) were specified and used to establish a relationship with Human Development Index and Gross Domestic Product Per Capita using the Vector Autoregressive (VAR) approach. Other tests carried out include: stationary, counteraction and Granger causality tests. The study found that the selected explanatory variables have no significant relationship with Gross Domestic Product Per Capita. While only Agricultural Sector GDP and Telecommunication sector GDP have significant relationship with Human Development Index, other variables are not statistically significantly at 5% level. Based on the findings the work concludes that the above selected sectors of the economy have not contributed significantly to the development of the Nigerian economy. The researcher recommends among others that financial sector services to the real sector should be sustainable to stimulate economic activities in a manner that creates linkages across economic value chains that will assure development in the long run.

**Key words:** Growth, Development, Inclusive growth, Living standard, Per capita income, Sectorial performance

### **1. INTRODUCTION**

In the 1970s and 1980s, the pre-occupation of economic planning was on growth (increasing output). Growth was seen as prerequisite for improved standard of living. Many developing countries, including Nigeria with support from World Bank and International Monetary Fund (IMF) embarked on various forms of economic reforms and adjustments all aimed at promoting growth, with an underling assumption that poverty will disappear if growth is achieved. The above postulation worked for few countries, and never worked for many, Nigeria inclusive. Hence, a paradigm shift away from the conclusion that fast and high growth leads to poverty reduction. However, evidence from many countries that experienced high growth, including Nigeria showed that incidence of income inequality was equally raising faster than the rate at which growth was recorded, suggesting that it is not the speed and rate of high growth that really matters in addressing problem of economic exclusion, but the structure of growth and its distributive effects. The implication being that fast and high growth can lead to non-inclusive growth if equitable access and opportunity to national resources is not guaranteed, especially for the vulnerable and under-privileged groups. The apparent lack of the above situation has led to a situation where high growth has widened the gap between the rich and the poor,

as well as eroded the middle class in Nigeria. This contradicts earlier theories of development that promoted extreme capitalism which suggested that inequality is good for growth and an incentive for poverty reduction through growth. Particular attention must now be placed on sustained positive correlation between sectorial performance and inclusive growth in Nigeria. The recent re-basing of Nigeria based on GDP growth which puts her as the biggest economy in Africa equally demand attention with the objective of identifying why the Nigerian economy is growing without leading to enhanced standard of living. The structural adjustment programme (SAP) policies of the 1980s, which continued in varying degrees till the late 1990s, has equally been sustained since the inauguration of the new democratic government in 1999 as series of reforms (National Economic Empowerment and Development Strategy (NEEDS); Vision- 20-2020) have been introduced.

These theoretical and empirical divergences on inclusive growth in developing economies have continued to elicit public debate on the degree of performance of the various sectors in our economy. Thus, it is important to investigate and see the picture presented by Nigerian data in this regard. This is essential considering the growth trends in recent time of some selected key sectors in Nigeria, their contributions to poverty alleviation and general improvement on the welfare of the citizenry has been a source of concern. Thus, one may wish to ask, to what extent has the various sectorial performances such as agriculture, manufacturing, energy and services affected the level of economic development of Nigeria? This paper investigates the long run relationship between sectorial performance and inclusive growth in Nigeria for the period 1990-2013. This work will extend the frontiers of literature in respect of the Nigerian experience as most of the previous studies have focused on a single sector analysis.

The paper is organized into five sections which include: the introduction, review of related literature methodological issues, empirical findings and finally conclusion.

## **2. LITERATURE REVIEW**

### **2.1 Conceptual Framework**

According to the World Bank (2000), growth is said to be inclusive when the growth is to be sustainable in the long run and should be broad based across the sector and inclusive of large part of countries labour force. Inclusiveness should be understood in the sense and focusing on equality of opportunity in terms of access to markets, resources and unbiased regulatory environment for business and individual (George, 2011).

The African Development Bank (AfDB) also pays central attention to the rate and pattern of growth, considering long-term, sustainable high economic growth necessary to reduce poverty and growing productive employment necessary to concomitantly reduce inequality (AfDB, 2012). In this perspective, the AfDB defines inclusive growth as “economic growth that results in a wider access to sustainable socio-economic opportunities for a broader number of people, regions or countries, while protecting the vulnerable, all being done in an environment of fairness, equal justice, and political plurality” (AfDB, 2012: 2). Also, Elena and Susana (2010) believe that growth can only be said to be inclusive when it allows people to contribute to and benefit from the growth process by reducing poverty. Anders & Sparling (2013) sees inclusive growth in terms of growth that is delivered by the inclusion of more people in the production of wealth, allowing them to benefit from overall economic development. Rainer & Ramos (2013) argued that inclusive growth involves improving the lot of underprivileged people in particular and overall making opportunities more plentiful while lessening barriers to the attainment of better living conditions.

The overall goal in development is therefore the provision of the basic needs, acceleration of economic growth, reduction of inequality and unemployment, eradication of absolute poverty as well as changes in attitudes, institutions and structures (political, civil rights of all people across gender, religions and races) in the economy. Economists have traditionally considered an increase in per capita income to be a good proxy for other attributes of development. But the weakness in income growth as an indicator is that it may mask the real change in welfare for large parts of the poor population.

Improvement in meeting basic needs for food, education, healthcare, and equity of opportunity, civil liberties, and environmental protection are not captured by statistics of income growth (Onwioduokit, 1998). Although different cultures place different values on the various elements of development, broadly defined, most seek improvements in every dimension.

### **3. THEORETICAL FRAMEWORK**

The post-World War II literature on economic development has been dominated by four major and sometimes competing strands of thought

- the linear-stages-of-growth model,
- theories and patterns of structural change,
- the international-dependence revolution, and
- the neoclassical, free-market counterrevolution

The linear-stages-of-growth model: The stages of growth model of development, was advocated by an American economic historian W.W. Rostow (1960). This school of thought focused on the lack of domestic savings and investment. In order to promote growth, policymakers had to induce higher savings and investment rates in developing countries. The model postulates that economic modernization occurs in five basic stages, of varying length: the traditional society, the preconditions for take-off into self-sustaining growth, the take-off, the drive to maturity and the age of high mass consumption. He further stated that one of the principal strategies of development necessary for take-off was the mobilization of domestic and foreign savings to generate sufficient investment to accelerate economic growth. This view assumes that domestic and foreign savings only are sufficient for growth. The theory was supported by the Harrod-Domar model (1946) which demonstrated that countries with higher savings ratio are expected to grow faster than those with lower rates and that the main obstacle to or constraint on development is the relatively low level of new capital formation in most developing countries (Todaro and Smith, 2009).

According to the proponents of the structural change model, Structural-change theory deals with policies focused on changing the economic structures of developing countries from being composed primarily of subsistence agricultural practices to being a "more modern, more urbanized, and more industrially diverse manufacturing and service economy". In Lewis' (1954) two-sector model or theory of surplus labour, labour increasingly moves away from the agricultural sector to the industrial sector. However, with unlimited supply of labour from the traditional sector, these transferred workers continually received only subsistence wages. The excess of modern sector profits over wages and hence investments in the modern sector continued to expand and generate further economic growth on the assumption that all profits would be reinvested.

Given the failure of the Lewis model to meet the challenges of the realities of contemporary developing countries, the International-Dependence Revolution model which postulates that developing countries are economically and politically dependent on more powerful, developed countries which have an interest in maintaining their dominant position (Hein 1992). There are three different, major formulations of international dependence theory; neo-colonial dependence theory, the false-paradigm model and the dualistic-dependence model.

In the 1980s, neoclassical counter-revolution economists used three approaches, market-friendly approach, to counter the international dependence model. In contrast with the international dependence model, these approaches mainly argued that underdevelopment is not the result of the predatory activities of the developed countries and the international agencies but was rather caused by the domestic issues arising from heavy state intervention such as poor resource allocation, government-induced price distortions and corruption (Meier 2000).

Neoclassical economists focused on the market to find a way out for the developing countries. Policies of liberalization, stabilization and privatization therefore become the central elements of the national development agenda. Foreign trade, private international investments and foreign aid flowing into the

developing countries are expected to accelerate economic efficiency and economic growth of these countries. Empirically, the models, however, did not bring about the expected results. The growth rates per capita have diverged among countries (Azariadis and Drazen 1990).

These theories and many others like them are not without their shortcomings but, as is usual of theories, they are merely representations of reality and not reality itself. The critical message from them is that development is multidisciplinary and that notwithstanding their shortcomings, each of them still captures some aspects, at least, of the challenges of contemporary developing countries.

### **3.1 Growth Trends**

#### **3.2.1 Relationship between Growth indicators and Sectorial Performance indicators**

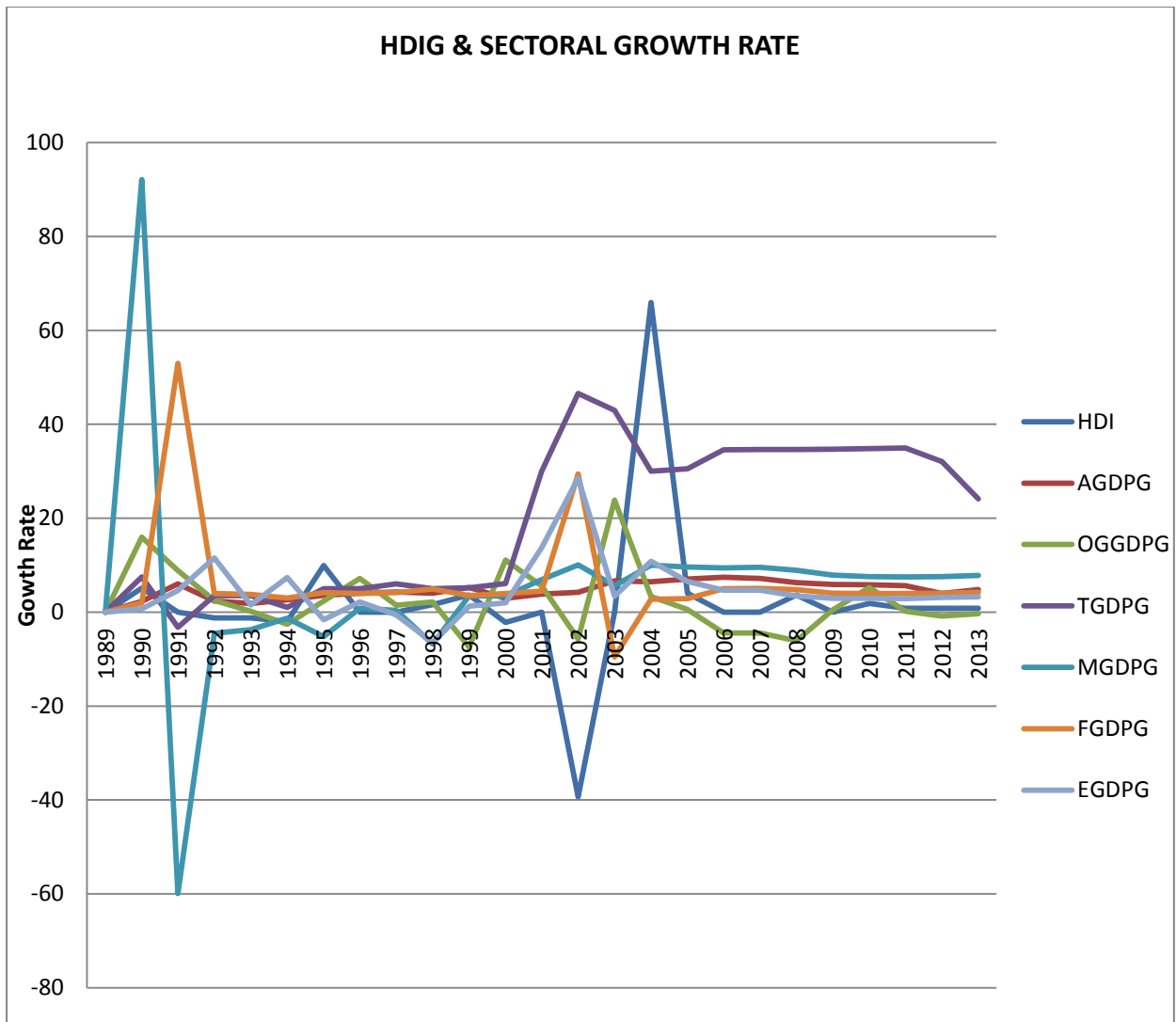
An analysis of the sectorial contributions to GDP revealed that the share of agriculture in GDP averaged 40.3 per cent during the period 1999-2011. It was 36.7 per cent in 1999; peaked at 43.9 per cent in 2000 and stabilized at 40.2 per cent in 2011 (CBN, 2013:10). Eluhaiwe (2010) noted that, agricultural production in Nigeria is heavily dependent on smallholder farmers who adopt manual approaches to farming. Also, only a small fraction of the smallholder farmers have access to finance. The condition under which these subsistence farmers operate which includes lack of access to technology, high covariance risk, lack of access to farm inputs, lack of financial literacy, resistance to change and other challenges, culminate into low yield and poor income.

Industry as a whole contributed only 11.3 per cent of the GDP in 1960-70, growing significantly in the next two decades to a high of 41.0 per cent in 1981-1990, owing largely to the crude petroleum and gas production during the decades. The contribution contracted to 38.6 per cent in the 1990s and further to 29.4 per cent during 2001-2009 (CBN, 2013). These numbers, in fact, belie the poor contribution of the manufacturing sub-sector to aggregate output in Nigeria compared with its peers in Asia and Latin America.

Political and economic factors contributed greatly to the decline in the manufacturing sectors. For instance, poor infrastructure and epileptic power supply are key impediments to the industry. The industry as a whole operates on more than 70% of energy it generates, using generators. And operating these generators greatly increases the cost of manufacturing goods. Other factors include increase in the prices of petroleum products used by industries, multiple taxation, unabated smuggling and inadequate access to finance, both locally and abroad.

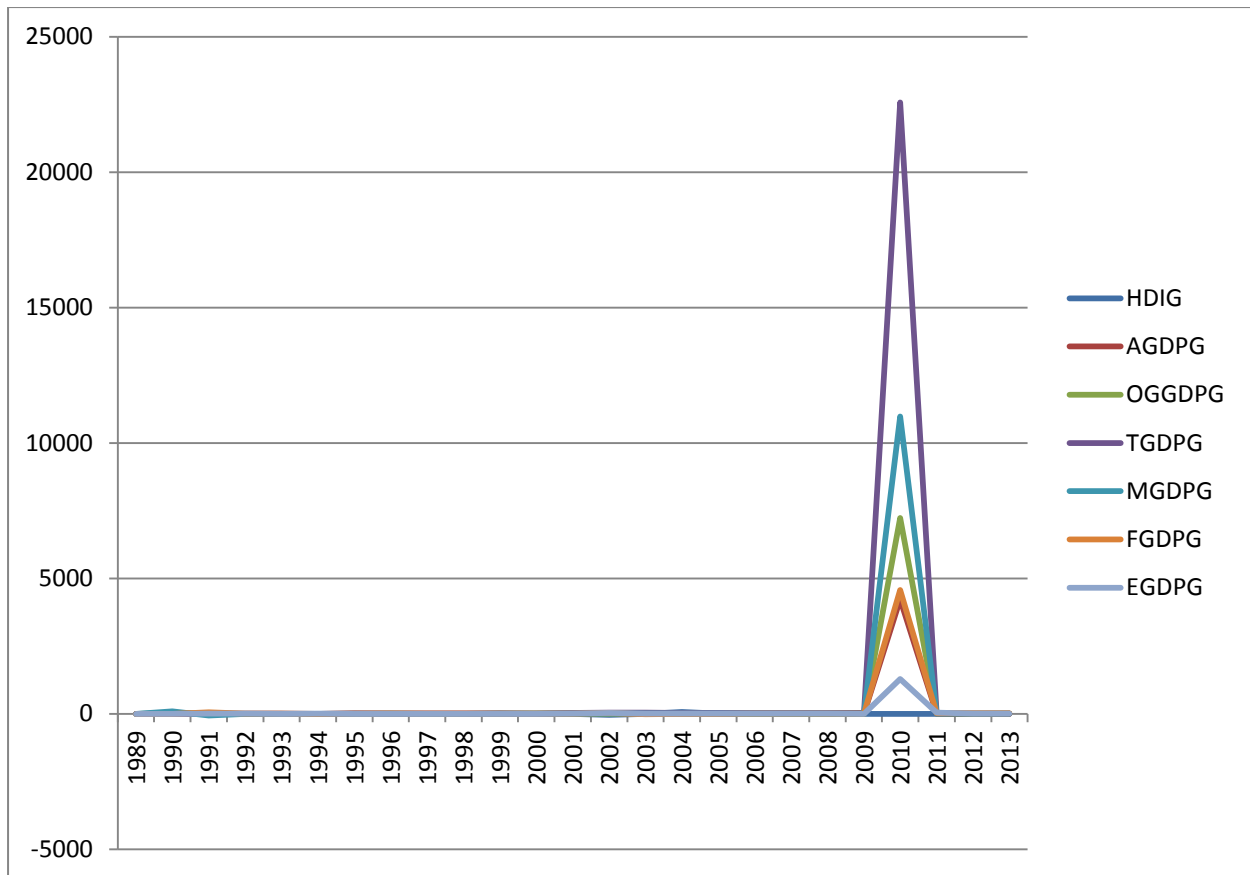
The country's telecommunication sector is undergoing speedy transformation on account of explosive growth and rapid infrastructure developments. Liberalisation of the telecom sector along with increased competition among players have brought substantial benefits to the consumers in terms of lower subscription rates and enhanced choice. Moreover, the Nigerian government is making efforts to transform the country's economy into a knowledge-based economy.

Nigeria's financial system is still shallow as majority of Nigerians lack access to formal financial services provider. The financial sector accounts for about 3% of the GDP. The wide consensus that credit from banks and other financial institutions play an important role in generating growth and reducing poverty is in no doubt. This is because availability of credit facilities enhances the purchasing power of individuals and households, and this has a multiplier effect on the economy of any nation. However, most banks in Nigeria have historically tended to concentrate lending to the corporate and commercial segments of the market, thereby locking out the retail/consumer segment from the credit system; largely on account of the lack of credit information on individuals and persons in the country, which make up that segment.



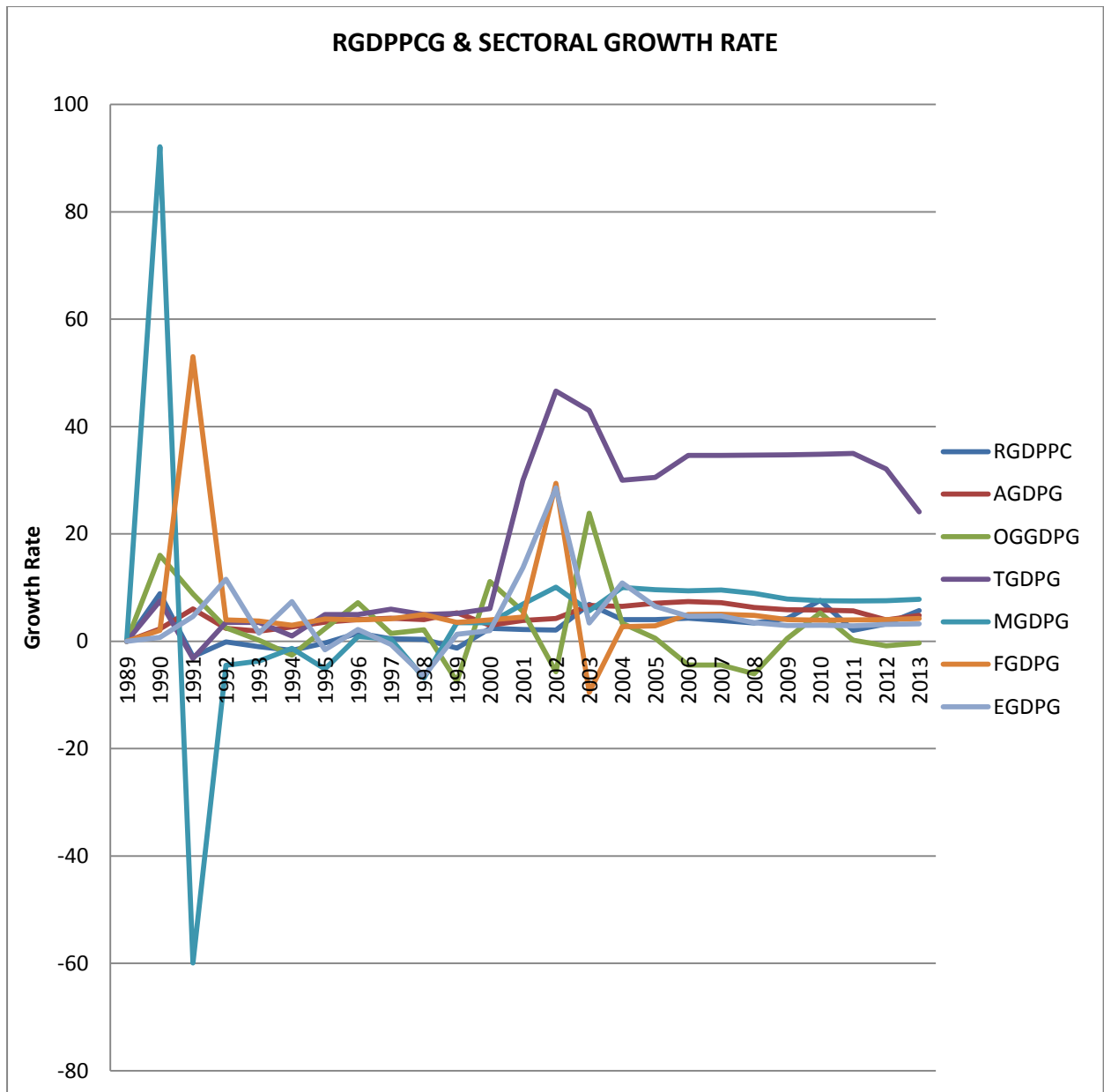
**Figure 1a:** Human Development Index and Sectorial Growth Rates (Before rebase)  
**Source:** CBN Statistical Bulletin 2013

Considering the relationship between HDI and sectorial performance growth, figure 1 shows an erratic movement of the sectors. However, sharp drops could be noticed in the graph. Manufacturing sector rose to its highest positive peak in 1990 and dropped sharply in 1991. Nevertheless, from the year 2010, the sectors witnessed a steady but almost straight movement. Conversely, telecommunication sector which was growing steadily began to fall. Also, between the 2005 and 2009, Oil and Gas sector had negative growth. The graph shows that within these years Oil and Gas growth rate was lower than HDI growth rate. The sectors contribution to economic growth has not been inclusive.



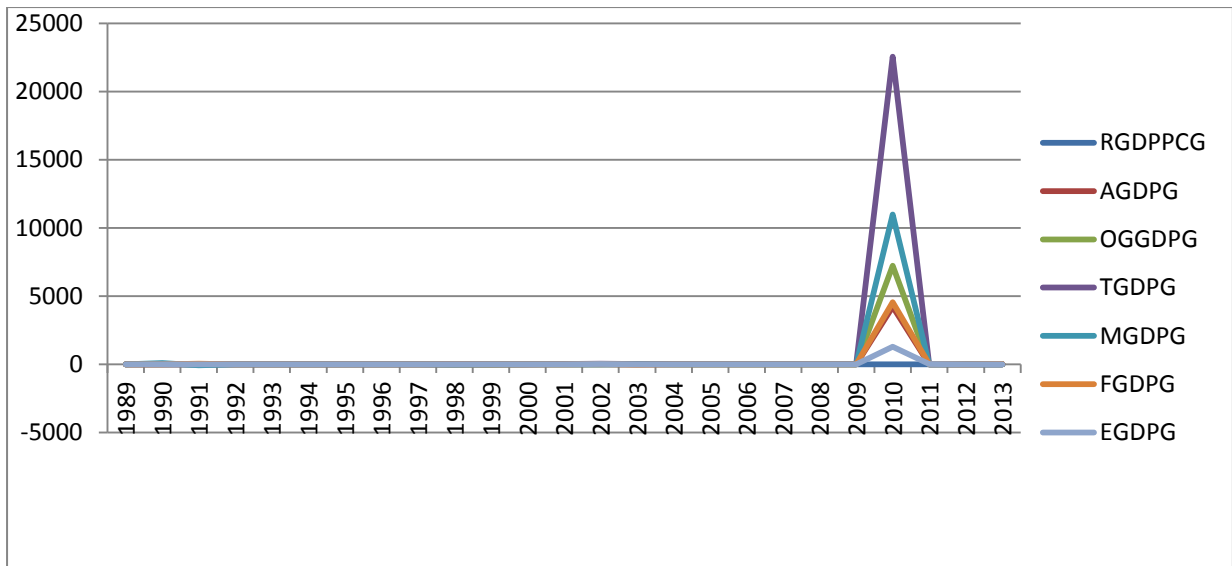
**Figure 1b:** Real GDP Per Capita and Sectorial Growth Rates (After rebase)  
**Source:** CBN Statistical Bulletin 2013

This situation did not change even after the economic rebase in 2010 as shown in 1b. Implementation of the rebase policy forced a sharp increase in 2011. This created a wrong belief that the economy has grown. However, looking at the movement the graph after 2010, it shows that the sectorial performance growth rate returned to its growth style before the implementation of the rebase policy.



**Figure 2a:** Real GDP Per Capita and Sectorial Growth Rates (Before rebase)  
**Source:** CBN Statistical Bulletin 2013

Considering the relationship between RGDPPCG and sectorial performance growth, figure 2a also shows an erratic movement of the sectors. Sharp drops could be noticed in the graph between 1989 and 1990, 2000 and 2003. Manufacturing sector rose to its highest positive peak in 1990 and dropped sharply in 1990 while it got to its lowest peak in 1991. Between 1992 and 2000 the sectorial growth rate was erratic. Some (MGDPG and EGDGP) even falling to negative. The period 2000 to 2004 witnessed another dramatic movement. Within this period, TGGDPG reached its highest peak in 2003. OGGDPG maintained a negative growth between 2005 and 2009 while the other sectors maintained almost a steady growth during the same period. The graph shows that within these years Oil and Gas growth rate was lower than GDPPC growth rate. Nevertheless, from the year 2010, the sectors witnessed a steady but almost straight movement with OGGDPG climbing to positive growth. Conversely, telecommunication sector which was growing steadily began to fall. The sectors contribution to economic growth has not been inclusive. RGDPPC did not grow adequately.



**Figure 2b:** Human Development Index Growth and Sectorial Growth Rates (After rebase)  
**Source:** CBN Statistical Bulletin 2013

This situation did not change even after the economic rebase in 2010 as shown in figure 2b. Implementation of the rebase policy forced a sharp increase in growth rate in 2011. This created a wrong belief that the economy has grown tremendously. However, looking at the movement of the graph after 2010, it shows that the sectorial performance growth rate returned to its growth style before the implementation of the rebase policy while HDI (fig1a) as well as GDPPC (Fig 2a) did not witness any growth corresponding to the level of growth displayed by the sectors. This therefore shows that though the economy is growing but such growth is not all inclusive considering the levels of HDI and GDPPC.

## 4. METHODOLOGY

### 4.1.1 Model Estimation Procedures

This paper shall employ econometric tools of unit root test, counteraction test, Granger causality and Vector autoregressive (VAR) approach. The descriptive analysis will also be incorporate to determine the nature of the data set. The variables were transformed to their logarithm for estimation in order to bring them to the same unit. The study would employ secondary data extracted from the Central Bank of Nigeria Statistical Bulletin and Annual Reports covering a period of 24 years (1990– 2013).

### 4.1.2 Unit Root Test

Dickey and Fuller looked at the distribution of this kind of test statistic and found that OLS estimates are biased down (towards stationary) and OLS standard errors. Thus, it is possible that many series that you would have thought were stationary based on OLS regression were in fact generated by random walks (Cochrane, 2005) we shall therefore subject all the variables to unit root test using the Augmented Dickey Fuller (ADF) test specified in Gujarati (2004) as follows.

$$\Delta Y_t = \beta_1 + \beta_2 + \delta Y_{t-1} + \alpha_i \sum_{i=1}^m \Delta Y_{t-1} + \varepsilon_t \quad (1)$$

Where  $\Delta Y_t$  = change in time t

$\Delta Y_{t-1}$  = the lagged value of the dependent variables

$\Sigma_t$  = white noise error term.

If in the above  $\delta = 0$ , then we conclude that there is a unit root. Otherwise there is no unit root, meaning that it is stationary. The choice of lag will be determined by Akaike information criteria.



#### 4.1.3 Co-integration Test

Having confirmed the stationarity of the variables, Co-integration test is carried out to show whether the variables are integrated (that is if they have a long term or equilibrium relationship between them (Koutsoyiannis, 2003). To test for this, the Johansen integration method would be employed.

Hypothesis to be tested is:

$H_0: \delta = 0$  (the variables are not integrated).

$H_1: \delta < 0$  (the variables are integrated)

Decision Rule: Reject  $H_0$  if the statistic value exceeds the critical value at otherwise does not reject.

#### 4.1.4 Causality Test

This test is used to show whether the contributions of the agric GDP, Oil and Gas GDP, Telecommunication GDP, Manufacturing GDP, Financial Sector GDP and Electricity Sector GDP has cause human development index(HDI) and GDP Per Capita(GDPPC) to rise in Nigeria. To achieve this, the granger causality test will be employed.

The following hypotheses are tested:

$H_{01}$ : Sectorial GDP contributions do not Granger causes HDI.

$H_{02}$ : HDI does not Granger cause Sectorial GDP contributions.

$H_{01}$ : Sectorial GDP contributions do not Granger causes GDPPC.

$H_{02}$ : GDPPC does not Granger cause Sectorial GDP contributions.

Decision Rule: if the computed f-value exceeds the critical value at the chosen level of significance or the p-value is below 5%, we reject the null hypothesis of no Granger Causality; otherwise do not reject the null hypothesis.

There is possibility of the following outcomes from the Granger causality test.

1. Unidirectional (from one variable to the other without feedback)
2. Bidirectional (from one direction to the other and vice versa i.e. with feedback)
3. No causality

#### 4.2 Model Specification

It is obvious that before growth becomes all inclusive; it should be examined, looking beyond traditional monetary and output indicators to dimensions that reflect the quality of life of all participants in an economy. In this paper, we shall be interchanging inclusive growth with economic development. This study therefore, shall proxy inclusive growth with Human Development Index (HDI) and Gross Domestic Product Per Capita (GDPPC). In the same vein, we shall proxy the sectorial performance indicators (independent variables) with the output of the selected sectors so as to capture their aggregate contribution to economic development. The independent variables are Agricultural sector performance (AGDP), Oil and Gas performance (OGGDP), Telecommunication sector performance (TGDP), Manufacturing sector performance (MGDP), financial institutions performance (FGDP) and electricity sector performance (EGDP).

The functional specification of the models is:

$$HDI_t = f(AGDP_t, OGGDP_t, TGDP_t, MGDP_t, FGDP_t, EGDP_t) \quad (1)$$

$$GDPPC_t = f(AGDP_t, OGGDP_t, TGDP_t, MGDP_t, FGDP_t, EGDP_t) \quad (2)$$

Putting the equations in their natural logarithm form, the models become:

$$HDI_t = \beta_0 + \beta_1 \ln AGDP_t + \beta_2 \ln OGGDP_t + \beta_3 \ln TGDP_t + \beta_4 \ln MGDP_t + \beta_5 \ln FGDP_t + \beta_6 \ln EGDP_t + \mu_t$$

$$\ln GDPPC_t = \beta_0 + \beta_1 \ln AGDP_t + \beta_2 \ln OGGDP_t + \beta_3 \ln TGDP_t + \beta_4 \ln MGDP_t + \beta_5 \ln FGDP_t + \beta_6 \ln EGDP_t + \mu_t$$

Where:  $\beta_1, \beta_2, \dots, \beta_6$  are the partial slope coefficients or parameters of the explanatory variables respectively. In addition,  $\beta_1, \beta_2, \dots, \beta_6$  represent the rate of change in the dependent variables for each unit change in independent variables respectively

$\beta_0$  is the intercept term or constant variable in the models.

$\mu_t$  is the disturbance or error term.

A priori expectations for the coefficients of the parameter are:  $\beta_1 > 0, \beta_2 > 0, \beta_3 > 0, \beta_4 > 0, \beta_5 > 0, \beta_6 > 0$

This means that we expect a positive functional relationship between dependent variables and the independent variables respectively.

### 4.3 Empirical Statistics

#### 4.3.1 Descriptive Statistic

The descriptive statistics of variables used in the estimations for the two models, are presented in tables 4.1 and 4.2.

**Table 4.1:** Descriptive Statistics of Variables in Model One

	HDI	AGDP	OGGDP	TGDP	MGDP	FGDP	EGDP
Mean	0.435250	11.56818	11.35162	10.05767	10.64956	10.56204	10.38476
Median	0.445000	11.27062	11.04124	9.462023	10.23528	10.28717	10.14741
Maximum	0.504000	13.14714	12.96844	12.87667	12.68171	12.31657	11.75108
Minimum	0.270000	11.08718	10.92474	9.091955	10.12306	9.898355	9.947852
Std. Dev.	0.060297	0.722881	0.733070	1.328248	0.898820	0.760728	0.592084
Skewness	-1.595332	1.699167	1.763040	1.452324	1.719364	1.689398	1.631378
Kurtosis	5.404434	4.036431	4.154037	3.538283	4.076827	4.061405	3.963178
Jarque-Bera	15.96164	12.62286	13.76504	8.726732	12.98440	12.54285	11.57329
Probability	0.000342	0.001815	0.001026	0.012735	0.001515	0.001890	0.003068
Sum	10.44600	277.6362	272.4388	241.3841	255.5894	253.4890	249.2342
Sum Sq. Dev.	0.083620	12.01880	12.36000	40.57758	18.58119	13.31027	8.062953
Observations	24	24	24	24	24	24	24

**Source:** computed using Views 7.0

**Notes:** HDI stands for the human development index; AGDP is the agric GDP; OGGP is the oil & gas GDP; TGDP is telecommunication GDP; MGDP stands the manufacturing GDP; FGDP is financial sector GDP and EGDP is electricity GDP.

The human development index (HDI) averages 0.43 it ranges from 0.27 to 0.50 with a standard deviation of 0.06 in model one. Agric GDP has a mean of 11.56 and varies from a minimum of 11.08 per cent to a maximum of 13.14 per cent with standard deviation of 0.73 per cent respectively. Oil & Gas GDP (OGGDP) averages 11.35 per cent and varies from 10.92 to 12.96 per cent, with a standard deviation of 1.76 per cent respectively.

Telecommunication GDP (TGDP) averages 10.05 per cent and varies from 9.09 to 12.87 per cent, with a standard deviation of 1.32 per cent respectively. Manufacturing GDP (MGDP) has a mean of 10.64 and varies from a minimum of 10.12 per cent to a maximum of 12.68 per cent with standard deviation of 0.89 per cent respectively. Financial sector GDP (FGDP) averages 10.56 per cent and varies from 9.89 to 12.31 per cent, with a standard deviation of 0.76 per cent respectively. Electricity sector GDP (EGDP) has a mean of 10.38 and varies from a minimum of 9.94 per cent to a maximum of 11.75 per cent with standard deviation of 0.59 per cent respectively.

To detect for the normality of the residuals or model errors, the associated probability values of Jarque-Bera statistics have probabilities less than 5 per cent significant level, so the null hypothesis is rejected, which means the error terms in the model are normally distributed.

**Table 4.2:** Descriptive Statistics of Variables in Model Two

	<b>GDPPC</b>	<b>AGDPP</b>	<b>OGGDP</b>	<b>TGDP</b>	<b>MGDP</b>	<b>FGDP</b>	<b>EGDP</b>
Mean	3.590734	11.56818	11.35162	10.05767	10.64956	10.56204	10.38476
Median	3.544886	11.27062	11.04124	9.462023	10.23528	10.28717	10.14741
Maximum	3.757119	13.14714	12.96844	12.87667	12.68171	12.31657	11.75108
Minimum	3.515067	11.08718	10.92474	9.091955	10.12306	9.898355	9.947852
Std. Dev.	0.080573	0.722881	0.733070	1.328248	0.898820	0.760728	0.592084
Skewness	0.773271	1.699167	1.763040	1.452324	1.719364	1.689398	1.631378
Kurtosis	2.131317	4.036431	4.154037	3.538283	4.076827	4.061405	3.963178
Jarque-Bera	3.146404	12.62286	13.76504	8.726732	12.98440	12.54285	11.57329
Probability	0.207380	0.001815	0.001026	0.012735	0.001515	0.001890	0.003068
Sum	86.17762	277.6362	272.4388	241.3841	255.5894	253.4890	249.2342
Sum Sq. Dev.	0.149315	12.01880	12.36000	40.57758	18.58119	13.31027	8.062953
Observations	24	24	24	24	24	24	24

**Source:** E-Views statistical package version 7.0

**Notes:** GDPPC stands for the GDP Per Capita; AGDP is the agric GDP; OGGP is the oil & gas GDP; TGDP is telecommunication GDP; MGDP stands for the manufacturing GDP; FGDP is financial sector GDP and EGDP is electricity GDP

In model two, GDP Per Capita (GDPPC) averages 3.59. It ranges from 3.51 to 3.75 with a standard deviation of 0.08. Agric GDP has a mean of 11.56 and varies from a minimum of 11.08 per cent to a maximum of 13.14 per cent with standard deviation of 0.73 per cent respectively. Oil & Gas GDP (OGGDP) averages 11.35 per cent and varies from 10.92 to 12.96 per cent, with a standard deviation of 1.76 per cent respectively.

Telecommunication GDP (TGDP) averages 10.05 per cent and varies from 9.09 to 12.87 per cent, with a standard deviation of 1.32 per cent respectively. Manufacturing GDP (MGDP) has a mean of 10.64 and varies from a minimum of 10.12 per cent to a maximum of 12.68 per cent with standard deviation of 0.89 per cent respectively. Financial sector GDP (FGDP) averages 10.56 per cent and varies from 9.89 to 12.31 per cent, with a standard deviation of 0.76 per cent respectively. Electricity sector GDP (EGDP) has a mean of 10.38 and varies from a minimum of 9.94 per cent to a maximum of 11.75 per cent with standard deviation of 0.59 per cent respectively.

To detect for the normality of the residuals or model errors, the associated probability values of Jarque-Bera statistics have probabilities less than 5 per cent significant level, so the null hypothesis is rejected, which means the error terms in the model (except GDPPC) are normally distributed.

#### 4.4 Stationary Test

**Table 4.3** Summary of Result of Stationary Test

Variable	ADF-Value	Critical Value	Probability	Decision	Order of Integration
HDI	-	1% = -3.78803	0.0010	Stationary at 1st difference	I(1)
		5% = -3.012363			
		10% = -2.646119			
LnGDPPC	5.970342	1% = -3.808546	0.0001	Stationary at 2nd difference	I(2)
		5% = -3.020686			
		10% = -2.650413			
LnAGDP	-	1% = -3.769597	0.0013	Stationary at 1st difference	I(1)
		5% = -3.004861			
		10% = -2.642242			
LnOGGDP	-	1% = -3.769597	0.0013	Stationary at 1st difference	I(1)
		5% = -3.004861			
		10% = -2.642242			
LnTGDP	-	1% = -3.769597	0.0017	Stationary at 1st difference	I(1)
		5% = -3.004861			
		10% = -2.642242			
LnMGDP	-	1% = -3.769597	0.0014	Stationary at 1st difference	I(1)
		5% = -3.004861			
		10% = -2.642242			
LnFGDP	-	1% = -3.769597	0.0016	Stationary at 1st difference	I(1)
		5% = -3.004861			
		10% = -2.642242			
LnEGDP	-	1% = -3.769597	0.0034	Stationary at 1st difference	I(1)
		5% = -3.004861			
		10% = -2.642242			

**Source:** Extracts from Result of Stationary Test

From table 4.2 above, the ADF values of the variables are greater than their critical values respectively (absolute term). This therefore, shows that all the variables, except GDPPC, are stationary at first difference. The series contains one unit root and are integrated of order one, I(1). GDPPC on the other hand is stationary at second difference and is integrated of order two, I(2). Having established that the variables are stationary, we conducted the counteraction test using Johansen integration method. This test is conducted to determine if long-run relationship exists among the variables.

#### 4.4.1 Counteraction Test

**Table 4.4.1:** Summary of counteraction Test (Model 1)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**	Hypothesized No. of CE(s)	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.999970	450.1542	125.6154	0.0001	None *	229.4536	46.23142	0.0000
At most 1 *	0.988319	220.7006	95.75366	0.0000	At most 1 *	97.89626	40.07757	0.0000
At most 2 *	0.949532	122.8044	69.81889	0.0000	At most 2 *	65.70095	33.87687	0.0000
At most 3 *	0.796280	57.10342	47.85613	0.0053	At most 3 *	35.00215	27.58434	0.0046
At most 4	0.479688	22.10126	29.79707	0.2929	At most 4	14.37321	21.13162	0.3352
At most 5	0.296006	7.728056	15.49471	0.4949	At most 5	7.721680	14.26460	0.4077
At most 6	0.000290	0.006377	3.841466	0.9358	At most 6	0.006377	3.841466	0.9358

**Source:** Extract from counteraction Test

Table 4.4.1 shows the counteraction result for model 1, the trace test as well as the max-Eigen test indicates 4 counteracting equations respectively at the 0.05 level. This led to the conclusion therefore, that long run relationship exists between the sectorial performance and the human development index used in model 1.

**Table 4.4.2:** Summary of counteraction Test (Model 2)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**	Hypothesized No. of CE(s)	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.994171	330.2576	125.6154	0.0000	None *	113.1864	46.23142	0.0000
At most 1 *	0.989604	217.0712	95.75366	0.0000	At most 1 *	100.4586	40.07757	0.0000
At most 2 *	0.879171	116.6125	69.81889	0.0000	At most 2 *	46.49440	33.87687	0.0010
At most 3 *	0.793591	70.11813	47.85613	0.0001	At most 3 *	34.71372	27.58434	0.0051
At most 4 *	0.677078	35.40441	29.79707	0.0102	At most 4 *	24.86756	21.13162	0.0142
At most 5	0.324842	10.53685	15.49471	0.2417	At most 5	8.641780	14.26460	0.3172
At most 6	0.082534	1.895068	3.841466	0.1686	At most 6	1.895068	3.841466	0.1686

**Source:** Extract from counteraction Test.

Table 4.4.2 shows the counteraction result for model 2. Thus, the trace test as well as the max-Eigen test indicates 5 counteracting equations respectively at the 0.05 level. This led to the conclusion therefore, that long run relationship exists between the sectorial performance and the GDP per capita used in model 2.

#### 4.5 Regression Test

**Table 4.5.1:** VAR Result - Dependent Variable: HDI (Model1)

Variable	Coefficient	Std. Error	t-Statistic
C	4.134912	3.23098	1.27977
LnAGDP	2.492238	0.63882	3.90134
LnOGGDP	0.446457	0.25700	1.73719
LnTGDP	-1.952988	0.29842	-6.54444
LnMGDP	-0.281554	0.23522	-1.19699
LnFGDP	0.103847	0.43825	0.23696
LnEGDP	-0.127688	0.46388	-0.27526
R-Squared	0.978120	Adj. R-Squared	0.934359
F-Statistic 22.35165			

**Source:** Extract from VAR Test

VAR Model - Substituted Coefficients:

$$\text{HDI} = 4.134912 + 2.492238 \cdot \text{LnAGDP} + 0.446457 \cdot \text{LnOGGDP} - 1.952988 \cdot \text{LnTGDP} - 0.281554 \cdot \text{LnMGDP} + 0.103847 \cdot \text{LnFGDP} - 0.127688 \cdot \text{LnEGDP} + 4.134912$$

Considering the regression result for model 1, as presented in table 4.4, the coefficient of Agricultural sector contribution to Gross Domestic Product (AGDP) is 2.492238. This implies that there is positive relationship between AGDP and HDI, in the short-run such that a unit change (increase) in AGDP will cause HDI to increase by 2.49units, *ceteris paribus*. That is the higher the investment in Agriculture, the higher its contribution to GDP and this will result to improved development of the economy and the citizenry, *all things being equal*. This relationship is statistically significant at 5% level. The variable (OGGDP), which is the contribution of Oil and Gas sector to Gross Domestic Product, has a positive coefficient of 0.446457. This positive relationship implies that as OGGDP increase by 1unit, HDI will be expected to increase by 0.45unit, *all things being equal*. However, this positive relationship is not statistically significant at 5% level.

Contrary to the above result, Telecommunication sector contribution to Gross Domestic Product (TGDP) has a statistically significant relationship with HDI but this relationship is inverse, indicating that as TGDP increases by 1unit, HDI will dwindle to the tune of 1.95units, *ceteris paribus*. MGDP and EGDP respectively, have negative and insignificant relationships with HDI. Their coefficients of -0.281554 and -0.127688 is an indication that HDI will dwindle by 0.28unit and 0.13unit as MGDP and EGDP increase by 1unit respectively. On the contrary, FGDP has positive relationship with HDI such that 1unit increase in FGDP will cause HDI to increase by 0.24unit, *all things being equal*. This relationship is not statistically significant at 5%. It should be noticed that the constant value is positive showing that at zero performance of the variables, HDI will increase. This is not significant and can be ignored.

Considering the coefficient of determination, the adjusted  $R^2$  shows that about 93.44% of the total variation in Human Development Index is determined by changes in the explanatory variables while 6.56% of the variations in the dependent variable are explained by other variables not explained by the model. Again, the  $R^2$  value of 97.81% shows that the model is good fitted. The F-statistics (22.35) indicates that the explanatory variables are jointly statistically significant at 5% level.

**Table 4.5.2** VAR Result: Dependent Variable: GDPPC (Model 2)

Variable	Coefficient	Std. Error	t-Statistic
C	-0.327350	3.71598	-0.08809
LnAGDP	0.137567	0.28070	0.49009
LnOGGDP	-0.122954	0.17663	-0.69813
LnTGDP	-0.128882	0.15434	-0.83505
LnMGDP	-0.101977	0.11697	-0.87179
LnFGDP	0.138318	0.13632	1.01464
LnEGDP	0.218759	0.22768	0.96080
R-Squared	0.998396	Adj. R-Squared	0.995187
F-Statistic	311.1830		

**Source:** Extract from VAR Test.

VAR Model - Substituted Coefficients:

$$\text{LnGDPPC} = -0.327350 + 0.137567 \cdot \text{LnAGDP} - 0.122954 \cdot \text{LnOGGDP} - 0.128882 \cdot \text{LnTGDP} - 0.101977 \cdot \text{LnMGDP} + 0.138318 \cdot \text{LnFGDP} + 0.218759 \cdot \text{LnEGDP} - 0.327350$$

The VAR result for model 2 (table 4.5.2), shows that AGDP, FGDP and EGDP have positive relationship with GDPPC. Their coefficients are 0.137567, 0.138318 and 0.218759 respectively. A unit increase in AGDP, FGDP and EGDP respectively will lead to increase in GDPPC to the tune of 0.14unit, 0.138unit

and 0.22unit, all things being equal. This positive relationship conforms to a priori expectation but is not statistically significant. Since finance is the resource that connects all various sectors of the economy, providing solutions for financing social services, growing the real sector is very critical to our socio-economic development. The contribution of the financial sector GDP is of critical importance considering the intermediation role it plays to stimulate economic activities in a manner that creates linkages across economic value chains. Unfortunately this has not been realized given the bottlenecks in extending financial services to the real sectors in our economy as depicted by the insignificant nature of our results.

Conversely, OGGDP, TGDP and MGDG have coefficients of -0.122954, -0.128882 and -0.101977, showing inverse relationship between them and GDPPC with the indication that 1unit increase in OGGDP, TGDP and MGDG will cause GDPPC to decrease by 0.12unit, 0.13unit and 0.10unit, *ceteris paribus*. This negative relationship does not conform to a priori expectation and are not statistically significant at 5%. However, the above results depict the real situation with regards to the performance of the various sectors namely: oil and gas, telecommunication and manufacturing. For instance, the country sells crude oil and imports refined petroleum products that are sold at a price far above the crude oil price. The situation is now worse considering the oil glut and the economy's much reliance on revenue from oil. The telecommunication is more in the area of sale of recharge cards as against manufacturing of cell phones and accessories and the accompanied technology. Also, the manufacturing sector is operating below optimum capacity as many Nigerians have penchant for foreign made goods as against locally produced ones. Again, most manufacturers suffer the high cost of production due to persistent erratic power supply that has defiled solutions. This has caused some companies like PZ, Michelin, Dunlop and others to shut down their subsidiaries in Nigeria and relocated to Ghana and some other countries. All these combined have continued to worsen the our GDP per capita and human development index. Life expectancy, income-inequality, illiteracy, fallen living standards, high mortality rate, unemployment and other social vices have been on the increase.

#### 4.6 Causality Test

**Table 4.6:** Summary of Result of Causality Test (Model 1)

Pairwise Granger Causality Tests  
 Date: 09/07/15 Time: 05:47  
 Sample: 1990 2013  
 Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LnAGDP does not Granger Cause HDI HDI does not Granger Cause LnAGDP	22	1.34141 0.59733	0.2878 0.5614
LnOGGDP does not Granger Cause HDI HDI does not Granger Cause LnOGGDP	22	1.06183 0.64612	0.3677 0.5365
LnTGDP does not Granger Cause HDI HDI does not Granger Cause LnTGDP	22	1.99558 0.32280	0.1665 0.7285
LnMGDP does not Granger Cause HDI HDI does not Granger Cause LnMGDP	22	1.28915 0.62740	0.3011 0.5459
LnFGDP does not Granger Cause HDI HDI does not Granger Cause LnFGDP	22	1.26580 0.76658	0.3073 0.4800
LnEGDP does not Granger Cause HDI HDI does not Granger Cause LnEGDP	22	1.64991 0.50568	0.2214 0.6119

\*Sig. if P-value <0.05 level,

Source: Extract from Result of Causality Test.

Considering the coefficient of determination, the adjusted  $R^2$  shows that about 99.52% of the total variation in Gross Domestic Product Per Capita is determined by changes in the explanatory variables while 0.48% of the variations in the dependent variable are explained by other variables not explained by the model. Again, the  $R^2$  value of 99.84% shows that the model is good fitted. The F-statistics (311.18) indicates that the explanatory variables are jointly statistically significant at 5% level. At zero performance of the explanatory variables, GDPPC will be negative as indicated by negative constant value.

From the result in table 4.7, the causality test results show that the Agric GDP(AGDP); Oil & gas GDP(OGGP); Telecommunication GDP (TGDP); Manufacturing GDP(MGDP); Financial sector GDP(FGDP) and Electricity sector GDP(EGDP) do not granger cause Human development index(HDI) and Human development index(HDI) does not in turn granger causes the various sectorial GDP in Nigeria within the period under review. Therefore, there is no equilibrium run relationship among the selected sectorial GDP and Human development index in Nigeria.

**Table 4.7:** Summary of Result of Causality Test (Model 2)

Null Hypothesis:	Lag	F-Statistic	Prob.
LnAGDP does not Granger Cause LnGDPPC	2	3.49287	0.0536
LnGDPPC does not Granger Cause LnAGDP		3.59573	0.0499
LnOGGDP does not Granger Cause LnGDPPC	2	4.00422	0.0376
LnGDPPC does not Granger Cause LnOGGDP		3.50450	0.0532
LnTGDP does not Granger Cause LnGDPPC	2	2.90981	0.0819
LnGDPPC does not Granger Cause LnTGDP		4.11835	0.0348
LnMGDP does not Granger Cause LnGDPPC	2	3.41110	0.0568
LnGDPPC does not Granger Cause LnMGDP		3.84327	0.042
LnFGDP does not Granger Cause LnGDPPC	2	2.76699	0.0911
LnGDPPC does not Granger Cause LnFGDP		3.33101	0.0602
LnEGDP does not Granger Cause LnGDPPC	2	2.75205	0.0922
LnGDPPC does not Granger Cause LnEGDP		3.67776	0.0471

**Source:** Extract from Result of Causality Test

From the result in table 4.8 (Model 2), GDPPC stands for the GDP Per Capita; AGDP is the agric GDP; OGGP is the oil & gas GDP; TGDP is telecommunication GDP; MGDP stands the manufacturing GDP; FGDP is financial sector GDP and EGDP is electricity GDP.

There is also unidirectional (one –way) granger causality running from GDP Per Capita (GDPPC) to agric GDP (AGDP), telecommunication GDP (TGDP), manufacturing GDP (MGDP) and electricity GDP (EGDP) as the associated probability values are less than the 0.05 at 5 per cent critical level. That is, causality runs without feedback implying that the increase or decrease in AGDP, TGDP, MGDP and EGDP separately may be as a result of increase or decrease in GDPPC. Only Oil & Gas GDP (OGGDP) granger causes GDP Per Capita (GDPPC). Thus, the increase or decrease in GDPPC may be as a result of increase or decrease in OGGDP. However, there is no causal relationship between Financial sector GDP (FGDP) and GDP Per Capita (GDPPC) in Nigeria within the period under review. This confirms the case of financial exclusion that has been witnessed in the country over time which has hampered the level of economic development in Nigeria.



## **5. SUMMARY AND CONCLUSION**

This work assessed the effect of Sectorial Performance on Inclusive Growth in Nigeria for the period 1990 – 2013. The work employed secondary data sourced from CBN statistical Bulletin while some tests carried out include: stationary, counteraction and vector autoregressive (VAR) tests. The descriptive test result indicates that the data set are normally distributed. The stationary test carried out using augmented dickey fuller (ADF) showed that all the variables, except GDPPC, are stationary at first difference. The tests established a long run relationship between sectorial performance and inclusive growth as confirmed by the VAR results. The F-statistics (311.18) indicates that the explanatory variables are jointly statistically significant at 5% level. There was no causal relationship between HDI and all the selected sectorial performance. However, there was a unidirectional (one – way) granger causality running from GDP Per Capita (GDPPC) to agric GDP (AGDP), telecommunication GDP (TGDP), manufacturing GDP (MGDP) and electricity GDP (EGDP). On the other hand, Oil & Gas GDP (OGGDP) granger causes GDP Per Capita (GDPPC) while no causal relationship between Financial sector GDP (FGDP) and GDP Per Capita (GDPPC) was found within the period under review. Based on the findings the work concludes that the different selected sectors of the economy have not contributed significantly to the development of the Nigerian economy despite the much orchestrated economic rebasing. They contribute to the gross domestic product which is a good measure of economic growth but such growth has not been inclusive. The citizens have not felt the impact of such growth. This conclusion is evidenced by the insignificant relationship witnessed between the sectorial contributions and selected economic development indicators (HDI and GDPPC). There is need to improve on the performance of the various sectors of the economy in order to achieve a sustainable growth. Efforts should be made to ensure that financial sector services to the real sector are sustainable to stimulate economic activities in a manner that creates linkages across economic value chains that will assure inclusive growth in the long run.

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