

## Contributions of the Productive Sectors' to the Nigeria Economic Performance

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### Abstract

The study empirically examined the contributions of the productive sectors' to the Nigeria economic performance from 1981 to 2016. The study gathered time-series data majorly from the Central Bank of Nigeria Statistical Bulletin. The model in the study specified total gross domestic product of Nigeria as a function of the contributions of the manufacturing, agricultural, oil and gas, building, transport and trading sectors in the Nigerian economy. Employing the classical Ordinary Least Square estimates, ADF unit root test, Johansen Co-integration estimation techniques and Error Correction Modelling to analyse the data obtained. Based on the parsimonious error correction result, the study empirically explored that the ECM is correctly signed and significant and all the explanatory variables were positively and significantly related to the total GDP a proxy of economic performance in Nigeria. The study concluded that the productive sectors in Nigeria exert positive and significant influence on the Nigerian economy for the period under investigation. The study recommended, inter alia, that the government and all other stakeholders should channel huge economic resources into investing more in the productive sectors, so that these sectors will bring about the desired level of economic growth in Nigeria, as witnessed in the European world.

**Key words:** Productive sectors'; Contribution; Economic performance; Nigeria

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### INTRODUCTION

The Nigerian economy has since the last few years been faced with various challenges of reintegration into the global economy as a result of economic imbalance and turndown. It is believed that to achieve the objective of economic growth through competitiveness, employment generation and income redistribution, every sector of the economy must be properly harnessed and actively promoted. The country is an emerging economy blessed with abundant natural resources which consist of natural gas, petroleum, tin, iron ore, coal, limestone, niobium, lead, and zinc. In the 1950s and early 1960s, agriculture accounted for about 60 to 72 per cent of total exports. Government strongly depended on export revenues from cash crops such as cocoa, palm-oil, rubber and cotton which were the nation's foreign exchange earners. During this regime, self-sustaining economy comprising of agricultural, industrial, service sectors, industries and automobile assembly plants were established to create more employment opportunities. Because of the paucity of native or local private capital, these activities were undertaken and financed by the government, often with foreign assistance from such countries as Britain and the United States. However, shortly after the attainment of independence in 1960, Nigerian economy evolved from an agrarian to an oil-dependent economy. Presently, oil dominates the economy while the agricultural exporting sector deteriorated sharply. As at 2005, the oil sector had grown significantly with oil and gas contributing about 99 per cent of export earnings and nearly 85 per cent of government revenues (Daramola, Ehui, Ukeje & McIntire, 2007).

The agricultural sector and other non-oil sectors have progressively suffered as a result of supremacy of oil in the economy (Ahungwa, Haruna & Rakiya, 2014). This position has, indeed constituted the country's main problem, as other sectors of the economy have been virtually ignored, with little or no attention. This is

arguably the major difficulty that the nation's economy has faced over the years. The country's over-dependence on oil revenue to the exclusion of other sectors of the economy has engendered a number of negative developments. This trend and the likely scenario that Nigeria's crude oil might soon dry up or become slack in demand as a result of various technological and bio-scientific developments have fuelled concerns among key economic players in recent times (Aminu & Anono, 2012). These possible scenarios have underscored the need for the government to diversify the country's economic base, with a view to making other sectors play their expected roles for the development of the economy. The recent fall in the demand of the nation's crude oil and the fall in oil prices globally is a source of worry to the government, individuals and private organizations as the trend has in no small measure brought about sharp slides in the performance of the various economic indices for the country.

Generally, as an economy grows, it is expected that there should be a shift from primary sector (extractive sector) to secondary (industrial sector) and ultimately the tertiary sector. Of these sectors, the industrial sector generates the greatest employment and income. This sector also promotes entrepreneurship and has the potential multiplier effect on the overall performance of the economy. However, the growth of the sector in Nigeria remains stunted because of various factors including inadequate infrastructural support and inconsistency. Hence, it was evidenced at the end of 2014 that the Nigerian economy was heading towards a serious decline in every area of economic growth and development (Tella, 2015).

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## 1. STATEMENT OF THE PROBLEM

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Nigeria is one of the leading exporters of crude oil to the global market. For almost 50 years, this trend has been ongoing with a positive implication of positing the country as one of the biggest earners in international trade. The process of colonial rule and formal economic exploitation ended in 1960 but left Nigeria relatively strong but undiversified economy. The country is undoubtedly endowed with abundant natural resources especially hydrocarbons which makes the country the largest oil producer in Africa and fifth largest in the league of Organization of Petroleum Exporting Countries (OPEC). According to British Petroleum (BP) 2012 statistics, Nigeria holds 2.3% of the world's oil proven reserves estimated at 37,200 million barrels and had an average daily production ceiling of about 2.46 million barrels (mbl/d) in 2011. However, the poor performance of the Nigerian economy in recent time despite the huge mineral, material and human endowment, as well as the accelerating dynamics of the global economy

calls for concern. The relevance of this study cannot be overemphasized in that it has the potential of reshaping the Nigerian resource management policies.

Over the years, some research works have been done in the areas of investigating the economic contributions of the productive sectors on the overall growth of Nigeria. Aminu and Anono (2012) investigates the contribution of agricultural and petroleum sectors to the economic growth and development (GDP) of the Nigerian economy between 1960 and 2010 through the application of Augmented Dickey-Fuller technique in testing the unit root property of the series; after which Chow breakpoint test was conducted to test the presence of structural change or break in the economy. The results of unit root suggest that all the variables in the model are stationary and the results of Chow breakpoint test suggest that there is no structural change or break in the period under review. The results also revealed that agricultural sector is contributing higher than the petroleum sector, though they both possessed a positive impact on economic growth and development of the economy.

Onakoya and Somoye (2013) examine the impact of public capital expenditure on economic growth in Nigeria in the context of macro-econometric framework at sectoral levels consisting four sectors namely: infrastructure, manufacturing, agriculture, oil and services. The research adopts a three-stage least squares (3SLS) technique and macro-econometric model of simultaneous equations to capture the disaggregated impact of public capital expenditure on the different sectors of the economy. The study shows that public capital expenditure contributes positively to economic growth in Nigeria. The results also indicate that public capital expenditure directly promotes the output of oil and infrastructure but is directly deleterious to the output of manufacturing and agriculture. The results suggest a positive but insignificant relationship to the services sector. The results however confirm that public capital spending indirectly enhances economic growth by encouraging private sector investments due to the facilitating role of government in the provision of public goods. The gap that is inherent in their study lies in the area of its emphasis on capital expenditure, hereby neglecting some recurrent expenditures that can indirectly contribute towards economic growth. Ahungwa, Haruna and Rakiya (2014) also examined the pattern and contribution of agriculture to the Gross Domestic Product (GDP) of Nigeria within a time frame of 53 years (1960-2012) using a time-series data and trend and regression analysis for analysis. The results showed that the share of agriculture to the total GDP had a downward trend, yet maintaining a clear dominance over other sectors from 1960-1975. Further analysis depicted an undulating trend, intertwining with the industrial sector from 1976-1989. The regression results showed that agriculture has a positive relationship with GDP and contributes

significantly with a coefficient of 0.664, implying that a percentage increase in the contribution of agriculture can increase the GDP by 66.4 percent higher than any other sector.

This present research work fills a unique gap in that it investigates the contribution of the different sectors of the economy to the overall growth of the economic performance of the economy. Previous studies adopt ordinary regression analysis and trend analysis, this work adopts both regression and co-integration analysis to determine both the short as well as long term contribution of the Nigerian major productive sectors to the overall economic performance measure in term of the Gross Domestic Product. Again, this presence study has a wider coverage of the productive sectors than those used in previous studies. Specifically, six productive sectors namely: Manufacturing, Agricultural, Oil and Gas, Building, Transport and Trading were considered to effectively determine the proportion of contribution of each sector to the economy.

### Objectives of the Study

The principal objective of this research is to examine the contribution of the Nigerian productive sector to the overall economic performance of the nation. The specific objectives are:

- i. to determine the viability of each productive sector in enhancing economic performance
- ii. to examine the extent to which each productive sector has contributed to the Nigerian economic performance.

### Research Questions

The following questions raised will be answered in order to provide solution to the stated objectives:

- i. What are the contributions of the productive sectors to the overall economic Nigerian performance of the Nigerian economy?
- ii. How viable is each of the productive sectors in enhancing economic performance of the Nigerian economy?
- iii. To what extent has each of the productive sector contributed to the Nigerian economic performance?

### Hypotheses of the Study

The following null hypotheses will be tested to proffer solution to the objectives of the study:

- i. The Nigerian productive sectors have no significant contribution to the overall economic performance of the country.
- ii. None of the Nigerian productive sector is significantly viable in enhancing national economic performance.
- iii. None of the productive sector has contributed significantly to the Nigerian economic performance.

## 2. LITERATURE REVIEW

### Conceptual Framework

The main concept issues in the study are based on the major variables that are involved in the investigation of the contribution of Nigerian economic sectors to its overall economic performance. The productive *sector is sector that directly or indirectly sustains the workers' consumption bundle.*

### Gross Domestic Product (GDP)

This is the money value of goods and services produced in an economy during a period of time irrespective of the nationality of the people who produced the goods and services. GDP at current market prices as used in this study equals GDP at current basic prices plus indirect taxes net of subsidies. This is GDP value at the market prices which purchasers pay for the goods and services they acquire or use. The GDP is generally taken as a measure of economic growth since it measures the total value created in an economy in a given period.

### Agriculture Sector

Agriculture involves the cultivation of land, raising and rearing of animals, for the purpose of production of food for man, feed for animals and raw materials for industries. It involves forestry, fishing, processing and marketing of these agricultural products. Essentially, it is composed of crop production, livestock, forestry, and fishing. The role of agriculture in reforming both the social and economic framework of an economy cannot be over-emphasized. It is a source of food and raw materials for the industrial sector. It is also essential for the expansion of employment opportunity, for reduction of poverty and improvement of income contribution, for speeding up industrialization and easing the pressure on balance of payment (Nwankwu, 1981).

According to Muhammad and Atte (2006), about 70% of Nigerians are employed in agriculture, despite this, the sector has suffered from years of mismanagement, inconsistent and poorly conceived government policies, neglect and the lack of basic infrastructure. Still, the sector accounts for over 26.8% of GDP. Presently, Nigeria is no longer a major exporter of cocoa, groundnuts (peanuts), rubber, and palm oil.

### Oil and Gas Sector

The development and exploration of the petroleum (oil) industry started with exploration activities by the German Bitumen Corporation. In 1937, an oil prospecting license was granted to shell D'Arcy Exploration Parties. In 1955, Mobil Exploration Nigeria Incorporated obtained concession over the whole of the former northern region of the country. This company carried out some geological work, drilled three deep wells in the former western region and abandoned the concession in 1961. In 1958, the company started production. In 1961, the Federal Government of Nigeria issued ten oil prospecting

licenses on the continental shelf to five companies. Oil was found in commercial quantities at Oloibiri in Niger Delta. Further discoveries at Afam and Boma established the country as an oil-producing nation. By April 1967, oil from Nigeria had reached 2 million barrels per day. Mining sector is the prior sector in Nigeria since late 1970s with the discovery of oil in commercial quantity in some part of the country.

The oil boom of the 1970s led Nigeria to neglect its strong agricultural and light manufacturing bases in favor of an unhealthy dependence on crude oil. In 2000, oil and gas exports accounted for more than 98% of export earnings and about 83% of federal government revenue. New oil wealth, the concurrent decline of other economic sectors, and a lurch toward a statist economic model fueled massive migration to the cities and led to increasingly widespread poverty, especially in rural areas.

The mining sector has been the mainstay of the Nigerian economy especially petroleum. Petroleum sector is the major contributor to GDP over the years as indicated by the current statistic. At average petroleum is contributing almost 40% to GDP, in 1990 its contributed 37.46, 48.19 in 2000 but its contribution decrease to 29.62% in 2009. The falling nature of this sector is attributed partly to the crisis in the Niger Delta region and partly due the overwhelming emphasis given to agriculture with the current global food crisis and the need for the country to diversify its export base. A collapse of basic infrastructure and social services since the early 1980s accompanied this trend. By 2000, Nigeria's per capita income had plunged to about one-quarter of its mid-1970s high, below the level at independence.

The United Kingdom is Nigeria's largest trading partner followed by the United States. Oil dependency, and the allure it generated of great wealth through government contracts, spawned other economic distortions. The country's high propensity to import means roughly 80% of government expenditures is recycled into foreign exchange. The recent fall in the global prices of oil and the rejection of our crude oil by the United State of America is already having adverse effect on the Nigerian economic performance

### **Service Sector**

Since undergoing severe distress in the mid-1990s, Nigeria's banking sector has witnessed significant growth over the last few years as new banks enter the financial market. Harsh monetary policies implemented by the Central Bank of Nigeria to absorb excess Naira liquidity in the economy has made life more difficult for banks, some of whom engage in currency arbitrage (round-tripping) activities that generally fall outside legal banking mechanisms.

Private sector-led economic growth remains stymied by the high cost of doing business in Nigeria, including the need to duplicate essential infrastructure, the threat of

crime and associated need for security counter measures, the lack of effective due process, and nontransparent economic decision-making, especially in government contracting. While corrupt practices are endemic, they are generally less flagrant than during military rule, and there are signs of improvement. Meanwhile, since 1999 the Nigerian Stock Exchange has enjoyed strong performance, although equity as a means to foster corporate growth is being more utilized by Nigeria's private sector.

### **Transport Sector**

The transportation sector infrastructure is a major constraint to economic development. Some principal ports and major roads are in very poor shape. However, extensive road repairs and new construction activities are gradually being implemented by state governments. The government implementation of 100% destination inspection of all goods entering Nigeria at the ports has resulted in long delays in clearing goods for importers and created new sources of corruption, since the ports lack adequate facilities to carry out the inspection. Although, there are several domestic private Nigerian carriers, and air service among Nigeria's cities is generally dependable. The maintenance culture of Nigeria's domestic airlines is not up to internationally accepted standards.

### **Building and Construction Sector**

The construction industry the world over is often perceived to be the life wire of its respective economy as it cuts across all aspects of human activities (Ayangade, 2009) and the Nigerian construction industry is not an exception to this. Its contribution ranges from enabling the procurement of goods and services to the provision of buildings and other infrastructure, thereby providing employment opportunities to its labour force while contributing immensely to the Gross Domestic Product (GDP). According to Ayangade (2009), the contribution of the Nigerian construction industry is yet to measure up to those of the western world like the UK and Australia due to its developing nature. While the construction industries of other developed countries are responsible for about 22% of their respective GDP's, the Nigerian case is different as it contributes slightly below 16% to its economy. However, this could be said to be complemented by the relatively higher employment (20%) it provides compared to the 12% as in the case of developed countries. Mbamali (2004) attributed this to relatively lower use of mechanization within construction in Nigeria and the high dependency of the Nigerian economy on the oil sector.

Obiegbu (2005) noted that the construction industry, unlike other sectors, is a complex one and requires articulate professionals who are ready to live up to its clients' expectations. Clients in the construction industry may either be private individuals including corporate bodies or public organisations which include the government. In Nigeria the federal government is often



seen to be involved in the most complex projects with about 38.4% of the market (Ayangade, 2005). This is followed by the state government which is responsible for about 19.2% of the projects in the industry, though there is still some form of partnering between different classes of clients. The players in the industry are a disparate group of individuals often assembled into temporary teams and may comprise of quantity surveyors, architects, Engineers, Estate surveyors & Valuers, Project Managers, Contractors and Sub-contractors, Suppliers, Labourers and Artisans.

### **Trading (Wholesale and Retail) Sector**

The wholesale and retail trade super sector is made up of two parts: the wholesale trade sector, and the retail trade sector. The wholesale trade sector comprises establishments engaged in wholesaling merchandise, generally without transformation, and rendering services incidental to the sale of merchandise. The wholesaling process is an intermediate step in the distribution of merchandise. Wholesalers are organized to sell or arrange the purchase or sale of (a) goods for resale (i.e., goods sold to other wholesalers or retailers), (b) capital or durable no consumer goods, and (c) raw and intermediate materials and supplies used in production. Wholesalers sell merchandise to other businesses and normally operate from a warehouse or office.

The retail trade sector comprises establishments engaged in retailing merchandise, generally without transformation, and rendering services incidental to the sale of merchandise. The retailing process is the final step in the distribution of merchandise; retailers are, therefore, organized to sell merchandise in small quantities to the general public. This sector comprises two main types of retailers: store and non store retailers. Quarterly Census of Employment and Wages data show that wholesale and retail trade make up a large part of the nation's employment and business establishments. In the economy as a whole, wholesale trade represents about 4.4 percent of all employment and about 7.2 percent of all establishments; while retail trade is about 11.7 percent of all employment and about 12.9 percent of all establishments.

### **Review of Empirical Studies**

The contribution of the abundance resources to economic growth and development of countries have been of keen interest to many researchers. As a result, there has been growing theoretical and empirical debate on whether colossal natural resources actually propels or mars economic growth.

Blinder (2002) asserted that national economies can be improved by government investment in productive sectors through the injection of income resulting in greater spending in the general economy. The consequential effect of this is stimulation of firm productivity and investment involving still more income and spending and so forth. The original stimulation starts a cascade of events, whose

total increase in economic activity is a multiple of the original investment. The advent of oil in the early 1970s made Nigeria highly dependent on oil revenue, with the performance of the agricultural and other sectors adversely affected over the years. Though, the growth rate in the agricultural sector in Nigeria increased from an average of about 3 percent in the 1990s to about 7 percent in mid-2000, certain performance indicators such as food security/sufficiency status of Nigerians continued to decline.

Anyanwu *et al.* (2013) examined the structure and growth of the GDP over the 49 years of the nation's existence, using multiple regression analysis and discovered that agriculture was among the key significant determinant of Nigeria's GDP with clear dominance from 1960-1984. This dominance is attributed to the fact that agricultural and macroeconomic policies of various governments then were skewed towards massive crop production at the time. Sala-i-Martin and Subramanian (2003) similarly observed that certain natural resources specifically oil and mineral pose negative effect on economic growth as a result of its harmful influence on institutional quality. He then attributed the underperformance of Nigerian economy to corruption and waste instead of the so called Dutch disease and suggested fair distribution of oil revenue as a therapy for resource curse. Bulte *et.al.* (2005) equally examined the connection between resource abundance, institutional quality and economic growth. Their own assessment was done through the use of human development indicators. The result reveals that resource rich countries seem to have low level human development and concluded that resource curse involve more inclusive than assumed by earlier studies. Papyrakis and Gerlagh (2004) argued that negative economic growth could only arise when natural resource is considered in isolation, but when some descriptive variables (like terms of trade, investment, corruption etc.) are incorporated, positive impact is guaranteed. The study went further to analyse the impact of natural resources on these variables and observed that its negative impacts is more than the positive impacts. The empirical investigation on the effect of resource abundance and institutional policies on economic growth by Arezki and van der Ploeg (2010) provided novel evidence on resource curse. It was discovered that countries with good institution and trade policies are less vulnerable to resource curse.

Chih-Hung Liu *et al.* (2008) investigated the causal relationship between GDP and public expenditures for US federal government covering the time series data 1974-2002, they found in this study that total expenditures does cause the growth of GDP, however, the growth of GDP does not cause the increase in total public expenditure which is inconsistent with Wagner's law. Muritala and Taiwo (2011) examined the trends and effects of government spending on the growth rates of real GDP

in Nigeria between 1970 and 2008 using Ordinary Least Square (OLS) technique. The findings show that there is a positive relationship between real GDP as against the recurrent and capital expenditure. Awe and Ajayi (2009) conducted an empirical analysis of the contribution of agriculture and petroleum sector to the growth and development of the Nigerian economy from 1960-2010. Nigerian revenue base for economic development reveals that the  $R^2$  for agricultural revenue was significant when the log of revenue from agriculture was tested on the revenue from agriculture. About 60 percent of the movement could be explained in the relationship. The findings from the study further revealed that dynamic relationship exists between the revenue from the non-oil sector economic development. Adefeso and Mobolaji (2010) suggested that the effect of monetary policy is dominant than fiscal policy on economic growth in Nigeria. This result was arrived at having utilised annual time series data during the year 1970 to 2007 and considering GDP, broad money ( $M_2$ ), Government Expenditure (GE) and Degree of Openness (DOP) as key parameters and error correction and cointegration framework. Ighodaro and Okiakhi (2010) examine government expenditure which was disaggregated into general administration, and community and social services in Nigeria using time series data for 46 years ending 2007 and applying the Granger causality test. The results showed that government expenditure has negative impact of on economic growth. The work of James and Aadland (2011) provided strong evidence that economic growth in resource rich countries is slow. The study tested the existence of resource curse at a disaggregated country level, ensured effective control of endogenous factors that can influence the result and eventually discovered that over-dependence on natural resource has negative impacts of on economic growth. Boyce and Herbert Emery (2011) argued that the negative relationship between resource abundance and economic growth is not enough evidence to conclude the existence of resource curse. The study proved through the simple two-sector model adopted that negative relationship can only exist between resource abundance and economic growth if there is no market and institutional failure usually caused by resource abundance. It also disputed that use of correlation as a veritable yardstick to justify resource curse. Their work which uses for US states from 1970 - 2001 eventually shows a positive correlation between resource abundance and income level but negative relationship between resource abundance and economic growth.

However, Cavalcanti, *et.al.* (2011) investigated by applying non-stationary panel methodology on heterogeneous sample from 53 oil exporting and importing countries and discovered positive relationship between oil abundance and economic growth. To arrive at this, they primarily developed an econometrical framework (based on economic theory) which was used

to examine the existence of long run relationship between real value of oil production, real income and investment rate. Their conclusion was that oil abundance is a blessing which could yield more benefits by adopting growth enhancing policies and institutions. This result challenged the opinion that oil wealth negatively affects economic growth. The study of Ekpo and Umoh (2012) revealed that the contribution of agriculture to GDP, which was percent in 1960, declined to 34 percent in 1988, not because the industrial sector increased its share but due to neglect of agriculture sector. It was therefore not surprising that by 1975, the economy had become a net importer of basic food items. The apparent increase in industry and manufacturing from 1978 to 1988 was due to activities in the mining sub-sector, especially petroleum. Aminu and Anono (2012) investigated the contribution of agricultural sector and petroleum sector to the economic growth and development (GDP) of the Nigerian economy between 1960 and 2010 through the application of Augmented Dickey-Fuller technique in testing the unit root property of the series; after which Chow breakpoint test was conducted to test the presence of structural change or break in the economy. The results of unit root suggest that all the variables in the model are stationary and the results of Chow breakpoint test suggest that there is no structural change or break in the period under review. The results also revealed that agricultural sector is contributing higher than the petroleum sector, though they both possessed a positive impact on economic growth and development of the economy.

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an undulating trend, intertwining with the industrial sector from 1976-1989. The regression results showed that agriculture has a positive relationship with GDP and contributes significantly with a coefficient of 0.664, implying that a percentage increase in the contribution of agriculture can increase the GDP by 66.4 percent higher than any other sector. This cumulative effect of agriculture on GDP clearly affirmed the dominance of the sector's contribution to the GDP of Nigeria.

### **Theoretical Issues**

The two main theories that forms the theoretical underpinning for this study are: The resource curse theory and the Dutch disease theory

#### **The Resource Curse Theory**

This theory postulates that nations which have rich, yet finite, natural resources may fail to develop in other sectors, ultimately bringing about financial problems. The idea that natural resources might be more an economic curse than a blessing began to emerge in the 1980s. The term *resource curse thesis* was first used by Richard Auty in 1993 to describe how countries rich in natural resources were unable to use that wealth to boost their economies and how, counter-intuitively, these countries had lower economic growth than countries without an abundance of natural resources (Auty, 1993). Numerous studies, including one by Jeffrey Sachs and Andrew Warner, have shown a link between natural resource abundance and poor economic growth (Sachs, and Warner (1995) This disconnect between natural resource wealth and economic growth can be seen by looking at an example from the petroleum-producing countries. From 1965 to 1998, in the OPEC countries, gross national product per capita growth decreased on average by 1.3%, while in the rest of the developing world, per capita growth was on average 2.2% as rightly reviewed by Gylfason, (2001). There is some argument as to how much of a role the resource curse theory plays in economic development, with many economists pointing to African nations as an excellent example of the myriad paths which developing nations can take.

This theory helps to remember that this idea is only a theory, and not a law which is fixed in stone. Several factors come into play in the resource curse theory. The first is fairly obvious. If a country has a large supply of a natural resource like oil, the temptation is to sink all energy and resources into development of the oil and gas industry, at the cost of other industries. This causes a series of chain reactions which can impede or even stall economic development. Given the above, a nation which sinks all of its energies into the oil and gas development might run into serious problems if the prices of oil fall radically. By investing heavily in one resource, a country or region puts itself at risk of developing a very volatile market.

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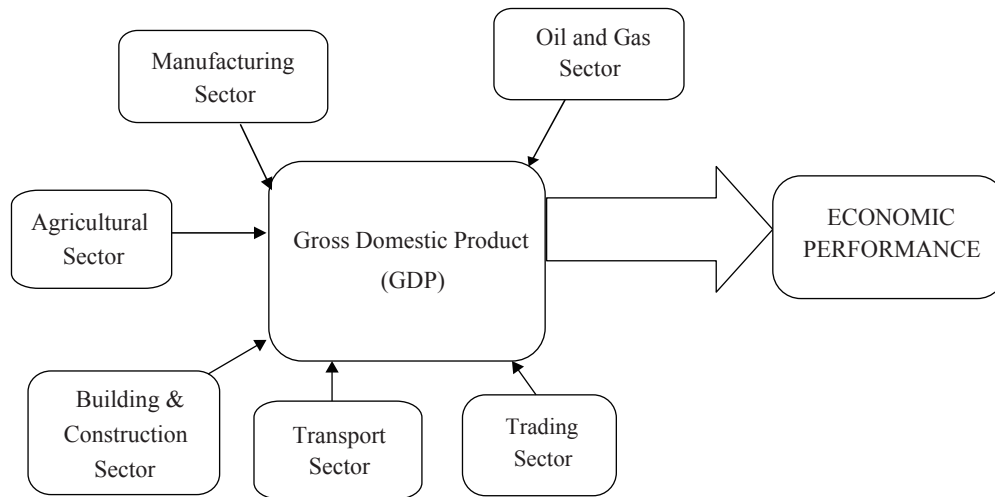
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#### **Dutch Disease Theory**

Dutch disease is an economic phenomenon in which the revenues from natural resource exports damage a nation's productive economic sectors by causing an increase of the real exchange rate and wage increase (Corden, 1984). This makes tradable sectors, notably agriculture and manufacturing, less competitive in world markets. Absent currency manipulation or a currency peg, appreciation of the currency can damage other sectors, leading to a compensating unfavorable balance of trade. As imports become cheaper, internal employment suffers and with it the skill infrastructure and manufacturing capabilities of the nation.

Also, since productivity generally increases faster in the manufacturing sector, the economy will lose out on some of those productivity gains (O'neil, (2004). Dutch Disease first became apparent after the Dutch discovered a massive natural gas field in Groningen in 1959. The Netherlands sought to tap this resource in an attempt to export the gas for profit. However when the gas began to flow out of the country so too did its ability to compete against other countries' exports. With the Netherlands' focus primarily on the new gas exports, the Dutch currency grew at a very quick rate which harmed the country's ability to export other products. With the growing gas market and the shrinking export economy, the Netherlands began to experience a recession. This process has been witnessed in multiple countries around the world including Nigeria (Bevan, and Gunning 1999).

The framework below depth the relationship and interaction between the dependent and independent variables



Source: Author's Design (2018)

**Figure 1**  
**Conceptual Framework on the Contribution of the Productive Sectors on the Nigeria Economic Performance**

Figure 1 shows how each of the selected productive sectors is expected to impact on the economic performance captured by the Gross Domestic Product. Each sector is proxied by the contribution to the overall economic performance. This contribution represents the level of investment injected into the different sector by both the public and private sectors.

### 3. MATERIALS AND METHOD

#### 3.1 Research Design

In order to realize the objectives of the study, relevant variables will be employed to capture the selected productive sectors and measure the time series characteristics of the variables in the models. The study is empirical and analytical in nature; it is an ex-post factor research in that it relies heavily on already computed data. The variables adopted are Gross Domestic Product (GDP) as a measure of economic performance while the contributions of the selected sectors are the independent variables. The contributions represent the level of investment injected into the different sector by both the public and private sectors. These sectors are: Manufacturing sector, (CMANS), Agric sector (CAGRS), Oil and Gas sector (COGS), Building sector (CBS), Transport sector (CTRNS) and Trading sector (CTRDS). The study covers a period of thirty-two years (1981-2013). The period was chosen because of various significant policies embarked upon to improve the Nigerian economic performance. Examples are structural adjustment programme as well as reforms in the various

sectors.

#### 3.2 Sources and Collection of Data

This study will solely employ secondary data which will be sourced from the Centre Bank of Nigeria Statistical Bulletin and the National Office of Bureau of Statistic.

#### 3.3 Sample Size and Sampling Technique

The population of this study is made up of all the productive sectors in Nigeria, these include: Manufacturing Agricultural, Oil and Gas, Building Transport, Trading, Service, Entertainment Finance and informal sector among others. Out of these sectors, six were selected based on purposeful sampling technique.

#### 3.4 Research Instrument

Since the study is quantitative and empirical in nature, it adopts the use of an econometric package called E-View to analyse the short and long run relation between the dependent and independent variables adopted in the study.

#### 3.5 Model Specification

This study will be anchored on the resource curse and Dutch Disease theories and the studies of Sala-i-Martin and Subramanian (2003) who employed regression analysis and observed that certain natural resources—specifically oil and mineral pose negative effect on economic growth as a result of its harmful influence on institutional quality. This study also has its underpinning in the work of Aminu and Anono (2012) who employed Augmented Dickey-Fuller technique in testing the unit root property of the time series data to investigate the contribution of agricultural sector and petroleum sector



to the economic growth and development (GDP) of the Nigerian economy between 1960 and 2010. .

Basically from the above, the research model specified for this study in other to test for the hypotheses of the study will generally be in this form

$$Y_{it} = \beta_0 + \sum \beta_i X_{it} + \epsilon_{it} \quad (1)$$

Y is the proxy of economic performance which will be measured by the Gross Domestic Product and X denote the proxies of the independent variables which will be measured by the contribution of the various productive sectors ( $X_1, \dots, X_6$ ).

Explicitly, the research model will be

$$Y_{it} = \beta_0 + \beta_1 X_{it1} + \beta_2 X_{it2} + \beta_3 X_{it3} + \beta_4 X_{it4} + \beta_5 X_{it5} + \beta_6 X_{it6} + \epsilon_{it} \quad (2)$$

By modification of the research model, we have:

$$TGDP = f(CMANS, CAGRS, COGS, CBS, CTRNS, CTRDS, \mu) \quad (3)$$

These sectors are: Manufacturing sector, (CMANS), Agric sector (CAGRS), Oil and Gas sector (COGS), Building sector (CFS), Transport sector (CTRNS) and Trading sector (CTRDS).

Equation (2) is stated explicitly as:

$$TGDP = \lambda_0 + \lambda_1 CMANS + \lambda_2 CAGRS + \lambda_3 COGS + \lambda_4 CBS + \lambda_5 CTRNS + \lambda_6 CTRDS + \mu \quad (4)$$

Where  $\lambda_0$  = Intercept of the equation

$\lambda_1, \dots, \lambda_6$  = Coefficients of estimates

CMANS = Contribution of Manufacturing sector

CAGRS = Contribution of Agricultural sector

COGS = Contribution of Oil and Gas sector

CBS = Contribution of Building sector

CTRNS = Contribution of Transport sector

CTRDS = Contribution of Trading sector

By log-linearising the model, it becomes

$$\text{LogTGDP} = \lambda_0 + \lambda_1 \text{LogCMANS} + \lambda_2 \text{LogCAGRS} + \lambda_3 \text{LogCOGS} + \lambda_4 \text{LogCBS} + \lambda_5 \text{LogCTRNS} + \lambda_6 \text{LogCTRDS} + \mu \quad (5)$$

Where: Where: Log = Natural Logarithm

$\theta_1, \theta_2, \theta_3, \dots, \theta_8$  = Coefficients of Estimates

$\mu$  = Error term

### 3.6 Method of Analysis

The Co-Integration Analysis technique will be employ for analysis. The concept of co-integration relates to the existence of a long-run equilibrium relationship to which an economic system converges overtime and equilibrium relationship among the set of non-stationary variables influencing it, and this implies that their stochastic trends must be linked. It is necessary to assess whether the series in a time series data are stationary or not. The reason is that regression of a non-stationary series on another non-stationary series may lead to an error called spurious regression. Thus, implicit in the co-integration theory is that, there exists a linear combination of these non-stationary variables that is stationary. If two series are non-stationary but their linear combination is, the two series are said to be co-integrated series. To be co-integrated

means that the variables- series move together in the long run at same rate (Davidson and Mackinnon, 1993). In this study, the test for the stationarity of the variables through the Augmented Dickey Fuller (ADF) unit root test.

### 3.7 Unit Root Test

This is the first step in co-integration analysis and it is the standard approach to investigate the stationarity of a time series. This test is relevant because statistical test of the parameter resulting from spurious regression, sequel to regression of a non-stationary series on another non-stationary series may be biased and inconsistent (Engle and Granger, 1987). The Augmented Dickey-Fuller (ADF) unit root equation is specified below:

**ADF Equation:**

$$\delta y_t = \beta_1 \delta y_{t-1} + \beta_2 \delta y_{t-2} + \beta_3 \delta y_{t-3} + \beta_4 \delta y_{t-4} + \beta_5 \delta y_{t-5} + \beta_6 \delta y_{t-6} + \beta_n \delta y_{t-n} + \epsilon_t \quad (7)$$

where  $\delta y_t$  is dependent variable in model,  $\beta_1 \delta y_{t-1}, \beta_2 \delta y_{t-2}, \beta_3 \delta y_{t-3}, \beta_4 \delta y_{t-4}, \beta_5 \delta y_{t-5}, \beta_6 \delta y_{t-6}, \beta_n \delta y_{t-n}$  is assumed to represent the independent variables in Model and  $\epsilon_t$  is the white noise residual.

### 3.8 Co-Integration Test and Error Correction Mechanism

Having established stationarity of the variables, the researcher will proceed to investigate whether or not there is such a relationship labeled "co-integration among the variables. This is sequel to the fact that, although economic variables may not be stationary individually, a mechanism could still exist that prevents some of the variables from diverging significantly from one another. The number of co-integration equation which is known as "co-integration rank" can be decided through the Johansen tests. The hypothesis of the ( $H_0$ ) is that there is no-co-integrating vector or there is one co-integration vector. This implies that the variables in the model have no equilibrium condition that keeps them in proportion to one another in the long run. To this hypothesis, compare the likelihood ratio in each of the row of the upper table of the output of the Johansen co-integration test to their corresponding critical values. If the likelihood ratio is greater than the critical value, then reject the null hypothesis and accept the alternative hypothesis of the existence of co-integration and vice-versa. The issues of error correction model (ECM) series arises when the various statistical tests performed supports the existence of co-integrating relationship between the dependent variable and any (or a combination) of its explanatory variables. The first error correction model (ECM1) known as the "over parameterized" ECM involves lagging of variable in the regression equation Gujarati (2005). The lead and the lag variables can be expressed as:

$$i.e D(A,2)D(A(-1),2)D(B,2)D(B(-1),2)D(C,2)D(-1),2) \dots \dots \dots D(N,2)D(-1),2) D(ECM(-1))$$

Where D means change, A,.....N, means number of variables, -1 means lag period, 2 means lead period and

(ECM (-1) value denotes the rate of adjustment from short to long run equilibrium.

However, “parsimonious” error correction model (ECM) is simply to introduce dynamism into the model. The selection of this final vector error correction model (ECM) should be based on economic as well as statistic criteria of evaluation put differently, only the variables that are statistically significant are reported in ECM2.

Specifying the models in a general ECM (Error Correction Mechanism)

$$\delta \log(TGDP) = \lambda_0 + {}_1\delta \log(CMANS)_{t-1} + {}_2\delta \log(CAGRS)_{t-1} + {}_3\delta \log(COGS)_{t-1} + {}_4\delta \log(CBS)_{t-1} + {}_5\delta \log(CTRNS)_{t-1} + {}_6\delta \log(CTRDS)_{t-1} + \sum_t \quad (8)$$

Where:

t-1 = Meaning they were lagged by one period

$\delta$  = Error Correction Mechanism

$\sum_t$  = White Noise Residual

#### 4. DATA ANALYSIS

This section deals with presentation of data gathered for the purpose of this study, data are analysed following a methodological approach that allows for reliable findings to be revealed; hence this study ignored the use of only the classical Ordinary Least Square (OLS) method in its analysis because it contains time series data that are assumed to be non-stationary which tends to produce spurious regression. Annual time series data for the period 1981 to 2016 were used for this study.

The dependent variable was proxied as Total Gross Domestic Product (TGDP) to measure economic growth while the independent variables were given as the contribution of Manufacturing sector to TGDP (CMANS), contribution of Agricultural sector to TGDP (CAGRS), contribution of oil sector to TGDP (COGS), contribution of building and construction sector to TGDP (CBCS), contribution of transport sector to TGDP (CTRNS) and contribution of trading and business sector to TGDP (CTRDS). This section basically deals with the presentation of data which are secondary in nature, analysis and the interpretation of results. The data to be used in this study will be presented in the appendix of the study.

##### Empirical Findings

It is assumed that time series data are non-stationary i.e. contain unit root; hence they tend to produce spurious regression. To establish the stationarity of the time series data, the Augmented Dickey-Fuller (ADF) Unit Root Test is employed. The condition for stationarity is that the ADF test statistic must be greater than the Mackinnon critical value at 5% (at absolute term). Table 1 presents the unit root test conducted on all the variables and their order of integration

##### 4.1 Ordinary Least Square (OLS) Method

In order to determine the goodness of fit of the model and reveal the linear relationship that exists between

TGDP and each of its sectorial contributions, the Ordinary Least Square (OLS) regression analysis is employed. It also reveals the four of the sectorial contribution index are significant on TGDP. The OLS has the unique characteristics of a Best Linear and Unbiased Estimators (BLUE). The significance of each indicator is conducted at 5% significance level and is determined if the probability value (p-value)  $\leq 0.5$ . Table 1 below the OLS regression analysis conducted on the specified model.

**Table 1**  
**Result of OLS Regression Analysis**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-60.50052	61.12660	-0.989758	0.3305
CMANS	1.131860	0.185792	6.092072	0.0000
CAGRS	1.260758	0.079600	15.83867	0.0000
COGS	0.952309	0.039975	23.82232	0.0000
CBS	5.457026	0.538017	10.14285	0.0000
CTRNS	-0.177756	1.851660	-0.095998	0.9242
CTRDS	1.928918	0.138714	13.90575	0.0000

$R^2 = 0.999957$ ; Adjusted R-squared = 0.999948, F-statistic = 112290.1, Dw\* Statistics = 1.837331, Prob(F-statistic) = 0.000000  
 Source: Authors' computation

The regression analysis revealed that the intercept value is -60.50052; thus implying that if each index for sectorial contribution are held constant, TGDP will decrease by 60.50052 units. CMANS which is in line to the theoretical expectation showed a positive relationship with TGDP. A unit increase in CMANS cause TGDP to rise significantly by 1.131860 units. This implies that the manufacturing sector of the economy exerts a positive influence on TGDP. CAGRS also has a positive relationship on TGDP in consonance with the theoretical expectation; however CAGRS exerts a significant influence on TGDP. This means that though an increase in CAGRS will cause TGDP to increases by 1.260758 units, it is therefore a determinant of TGDP. The contribution of oil and gas sector (COGS) to TGDP also have a direct effect on TGDP because as the COGS increases, the value of total GDP also increases. In conformity to the theoretical expectation, COGS exert a positive effect on TGDP. A unit increase in COGS spurs the value of TGDP up by 0.952309 units. However, the variable has a significant influence on TGDP, implying it is also a determinant of TGDP. Increase in the activities of the infrastructure that is construction (CBS) also causes an increase in the total GDP of the country. This also keys with the theoretical expectation of the study. As a result a unit increase in contribution of building sector will significantly accelerate the growth of the economy by 5.457026 units. Another variable (CBSC) has a positive influence on TGDP; however the influence is also significant on TGDP. Conversely, CTRNS posits an insignificant negative effect on the economic growth in

Nigeria, thus indicates that a unit increase in contribution of transport sector will cause a decrease in Nigerian economic growth by 0.177756 units. This therefore makes transportation sector a non-determinant of TGDP. Finally, contribution of trading sector positively and significantly affect economic growth of Nigeria by 1.928918 units increase. This is in line with the theoretical expectation. The insignificance of CTRNS means that it may not be a determinant of TGDP. It is therefore suffix to say that all the control variables used in the model are positively related to TGDP which is a proxy for the controlled variable with the exception of contribution of transport sector which appears to be insignificant against the significance of other variables. The coefficient of multiple determination ( $R^2$ ) is 0.999957, as well as the Adjusted R-squared which appears to be 0.999948. This indicates that the indices of sectorial contribution to Total GDP can explain approximately about 99% of total variation in Total GDP while the remaining 1% is accounted for by factors not specified in the model (white noise). The F-statistic of 112290.1 with p-value of 0.000000 shows that the overall model is statistically significant at 5% significance level i.e. 95% confidence level in explaining the behaviour of the Dependent variable. The Durbin Watson Test also indicates 1.837331 which is very close to 2. It is thus inferred that the model built for this study is a reliable predictor of variations in the Total GDP.

#### 4.2 ADF Unit Root Test

It is assumed that time series data are usually non-stationary i.e. It contains unit root; hence they tend to produce spurious regression in some cases. To establish the stationarity of the time series data, the Augmented Dickey-Fuller (ADF) Unit Root Test is employed in the study. The condition for stationarity of each variable is that the ADF test statistic of each variable must be greater than its Mackinnon critical value at 5% (at absolute term). Table 2 below presents the unit root test conducted on all the variables and their order of integration is also enlisted.

**Table 2**  
**Result of ADF Unit Root Test**

Variable	ADF Test Statistic	Mackinnon Critical Value @ 5%	Order of Integration
TGDP	-10.15951**	-3.548490	I(2)**
CMANS	-10.45710***	-3.548490	I(2)**
CAGRS	-6.095938**	-3.548490	I(2)**
COGS	-8.087448**	-3.548490	I(2)**
CBCS	-4.444879**	-3.548490	I(2)**
CTRNS	-5.711581**	-3.548490	I(2)**
CTRDS	-11.44285**	-3.548490	I(2)**

**Note:** \*(\*\*) denotes acceptance at 1&5 percent level of significant  
I(2) denotes stationary at 2nd difference

Source: Authors' computation

To further investigate the randomness of the series, the ADF test is employed. The ADF is primarily used to check whether a given series is stationary or non-stationary. According to Shafi (2014), "if the series is found to be non-stationary, then the null hypothesis being random will be accepted". He further proposed that the ADF test is given as a t-statistic which is generally negative and that the more negative the t-statistic, higher are the chances of rejecting the null hypothesis. The results give as t-statistic is compared with the critical values calculated at particular level of significance. The test critical values are calculated at 1%, 5%, 10%. If the t-statistic is less than the critical value calculated at a given critical level, the researcher has to reject the null hypothesis of the series being random.

It should therefore be noted that some of the results were stationary at first difference while others at second difference which by implication means that all the variables retain innovative shock passed on them. However, for the variables to be associated to one another statistically in the long-run, they must be of the same order of integration, this is shown in the second difference unit root test table of Table 2 where all the variables are stationary at 5% level and integrated of the order I (2). The confirmation of the presence of non-stationary variables in the series, which brings to book the possibility of spurious relationship in the short run due to the presence of random walk, and the fact that they are integrated of the same order after differencing, suggest that long run association test should be carried out, to test for the presence of co-integrating equation amidst the multivariate series in the long run. The co-integration test was done using Johansen maximum likelihood ratio approach.

#### 4.3 Co-Integration Test

This is relevant for determining whether or not a long-run equilibrium relationship exist between the sectorial contribution index and Total GDP. In other words, Co-integration is the statistical implication of the existence of a long-run equilibrium relationship between variables.

**Decision Rule:** The condition for a long run co-integrating vector is that the trace statistics (likelihood ratio) must be greater than 5% critical value.

**Table 3**  
**Result of Johansen Co-integration Test**  
**Table 3a**  
**Trace Statistics Result**

Hypothesized No. of CE(s)	Eigen value	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.979722	429.9942	134.6780	0.0000
At most 1 *	0.962698	297.4554	103.8473	0.0000
At most 2 *	0.911915	185.6395	76.97277	0.0000
At most 3 *	0.716162	103.0381	54.07904	0.0000
At most 4 *	0.636085	60.22005	35.19275	0.0000

To be continued

Continued

Hypothesized No. of CE(s)	Eigen value	Trace Statistic	0.05 Critical Value	Prob.**
At most 5 *	0.441819	25.85165	20.26184	0.0076
At most 6	0.162447	6.027220	9.164546	0.1886

Trace test indicates 6 cointegrating eqn(s) at the 0.05 level

**Table 3b**  
**Max-Eigen Value Statistics Result**

Hypothesized No. of CE(s)	Eigen value	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.979722	132.5389	47.07897	0.0000
At most 1 *	0.962698	111.8159	40.95680	0.0000
At most 2 *	0.911915	82.60141	34.80587	0.0000
At most 3 *	0.716162	42.81801	28.58808	0.0004
At most 4 *	0.636085	34.36840	22.29962	0.0007
At most 5 *	0.441819	19.82443	15.89210	0.0114
At most 6	0.162447	6.027220	9.164546	0.1886

Max-eigenvalue test indicates 6 cointegrating eqn(s) at the 0.05 level.

From the Table 3, it could be inferred that both the Trace statistics and max-eigen value statistics tests

GDP	CMANS	CAGRS	COGS	CBS	CTRNS	CTRDS	C
1.000000	12.47498	-3.452061	1.014135	-14.12146	-29.60220	-2.901850	-207.9882
	(1.10348)	(0.25380)	(0.34048)	(1.27414)	(5.89668)	(0.52006)	(108.731)

Note: The Standard Error Statistics are those stated in parenthesis.

$$TGDP = 12.47498_{CMANS} - 3.452061_{CAGRS} + 1.014135_{COGS} - 14.12146_{CBS} - 29.60220_{CTRNS} - 2.901850_{CTRDS} - 207.9882_C$$

From the long run model, if all independent variables are held constant, TGDP will reduce by 207.9882 units in the long run in relation to what was obtained in the short run. The coefficient of CMANS is 12.47498, implying a positive relationship between CMANS and TGDP on the long run. A unit increase in CMANS will cause an increase in TGDP by 12.47498 units.

The coefficient of CAGRS is -3.452061. The coefficient is negatively signed showing that in the long run, CAGRS and TGDP are inversely related. This unit change will cause TGDP to decrease in the long run by 3.452061 units if CAGRS increases by a unit. COGS has a coefficient of 1.014135. It can be deduced that in the long run, if COGS should increase by a unit; it will cause TGDP to increase by 1.014135 units. The coefficient of CBS is -14.12146 which implies a negative relationship

indicate 6 cointegrating equations which implies a long-run relationship or existence of co-integration among total gross domestic product (TGDP), Contribution of Manufacturing sector to TGDP (CMANS), contribution of Agricultural sector to TGDP (CAGRS), contribution of oil sector to TGDP (COGS), contribution of building and construction sector to TGDP (CBS), contribution of transport sector to TGDP (CTRNS) and contribution of trading and business sector to TGDP (CTRDS). Therefore, the hypothesis of no co-integration has been rejected at 5% significance level.

#### 4.4 Long Run Model

The result of the Johansen co-integration as depicted above shows the existence of long run relationship among the variables. The co-integrating equation will be chosen based on log likelihood ratio. Since the log likelihood ratio is negatively signed, the equation with the highest log likelihood ratio will be chosen at absolute term.

From the Johansen co-integration result, all six log likelihood ratio of the respective co-integrating equations are negatively signed. Therefore, the highest log likelihood ratio is chosen. The lowest log likelihood ratio is -1396.030 and its corresponding co-integrating equation is stated below:

Cointegrating Equation(s): Log likelihood -1396.030  
 Normalized cointegrating coefficients (standard error in parentheses)

between contribution of building and construction and total gross domestic product in Nigeria. This will therefore bring about a decrease slope of about 14.12146 in TGDP. In furtherance to that, contribution of transportation sector (CTRNS) and trading sector (CTRDS) negatively affect total gross domestic product by 29.60220 and 2.901850 unit decrease.

However, CAGRS, CBS, CTRNS and CTRDS were all in variance to the theoretical expectation in the long run while CMANS and COCG conform to the economic theoretical expectation.

#### 4.5 Error Correction Mechanism (ECM)

Having identified the co-integrating vector using the Johansen Cointegration Test, the study proceeds to investigate the dynamics of the model. The Error Correction Mechanism (ECM) intends to validate the presence of long-run relationship and incorporate the short-run dynamics into the long-run equilibrium relationship.



#### 4.5.1 Overparameterized Error Correction Model

**Table 4 Overparameterized Error Correction Model Result**  
Dependent Variable: D(GDP,2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	23.03406	64.31820	0.358127	0.7244
GDP(-1)	-0.005390	0.002918	-1.847125	0.0812
D(CMANS,2)	1.429684	0.812399	1.759830	0.0954
D(CMANS(-1),2)	0.099232	0.875309	0.113368	0.9110
D(CAGRS,2)	1.050848	0.140197	7.495499	0.0000
D(CAGRS(-1),2)	-0.205335	0.145207	-1.414088	0.1744
D(COGS,2)	0.951951	0.093025	10.23322	0.0000
D(COGS(-1),2)	-0.038172	0.088393	-0.431841	0.6710
D(CBS,2)	1.032342	2.664561	0.387434	0.7030
D(CBS(-1),2)	2.786931	3.446830	0.808549	0.4293
D(CTRNS,2)	5.497499	6.641933	0.827696	0.4187
D(CTRNS(-1),2)	16.85705	9.021206	1.868603	0.0780
D(CTRDS,2)	1.492776	0.207907	7.180026	0.0000
D(CTRDS(-1),2)	0.167068	0.190746	0.875868	0.3926
ECM(-1)	-0.782433	0.326688	-2.395045	0.0277
R-squared	0.984067	Adjusted R-squared	0.971675	
Durbin-Watson stat	1.775178	F-statistic	79.41083	
Prob(F-statistic)	0.000000			

Source: Author's Computation

The overparameterized error correction mechanism (ECM) was carried out in order to identify the main dynamic of the model and ensure that the model have not been constrained by a too short lag length. The overparameterized ECM presented in Table 4 shows that there truly exist long-run equilibrium relationship among the variables. This is evident by the coefficient of one period lag of ECM which is statistically significant the correctly signed ECM (-0.782433). Hence, the result shows that D(CAGRS,2), D(COGS,2), D(CTRDS,2) and ECM are statistically significant at 0.05% level of significance. The result shows that about 78.24% (an increase) of the short-run inconsistencies are being corrected and incorporated into the long-run equilibrium relationship annually. Hence for concise interpretation of the error correction model, less significant variables were removed from each pairs in the over-parameterized model for a parsimonious error correction model to be generated.

#### 4.5.2 Parsimonious Model

**Table 5 Parsimonious Error Correction Model Result**  
Dependent Variable: D(GDP,2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.813638	56.97445	0.137143	0.8921
GDP(-1)	-0.002547	0.001857	-1.371492	0.1829
D(CMANS,2)	1.780332	0.191522	9.295686	0.0000
D(CAGRS,2)	1.211843	0.090461	13.39623	0.0000
D(COGS,2)	0.943764	0.033453	28.21189	0.0000
D(CBS(-1),2)	3.241502	0.778387	4.164383	0.0003
D(CTRNS(-1),2)	14.32141	4.121462	3.474838	0.0020
D(CTRDS,2)	1.497118	0.153269	9.767894	0.0000
ECM(-1)	-1.056873	0.238047	-4.439767	0.0002
R-squared	0.978849	Adjusted R-squared	0.971799	
F-statistic	138.8388	Durbin-Watson stat	1.747141	
Prob(F-statistic)	0.000000			

Source: Author's Computation

The results of the parsimonious error correction model as presented in Table 5 shows the coefficient of the parameters estimated, alongside with the standard errors, t-values and the probability values used in conducting diagnostic test to verify the stability and predictive accuracy of the series. The result revealed that there existed pronounced feed-back of the previous period disequilibria, from the long-run trends of the series. Specifically, the results indicated feed-backs of about 105 percent, from the previous period disequilibria between the present and past values of variables. The result showed that the ECM coefficients of the series is significant and correctly signed, thus validating the presence of long run relationship amidst the variables and that about 105% of the short run inconsistencies are corrected and incorporated into the long run dynamics, annually.

In the parsimonious ECM result, the study indicates that D(CMANS,2), D(CAGRS,2), D(COGS,2), D(CBS(-1),2), D(CTRNS(-1),2), D(CTRDS,2) were positive and statistically significant at 0.05% level of significance. This result conforms to the earlier expectation of positive relationship. However one percent change in CMANS, CAGRS, COGS, CBS, CTRNS and CTRDS will increase economic growth by about 17%, 12%, 9%, 32%, 14% and 14% respectively.

The result also showed that the overall model is significant, given the f-statistics probability value of 138.8388. This implies that the R-square value of 97% is significantly different from zero. Thus the series is a good-fit. The Durbin Watson Statistics of 1.747141 is relatively close to 2 which indicate the absence of serial auto-correlation between successive error terms.

#### 4.6 Summary of Findings

The paper reviews the contributions of some specific sectors of the Nigeria economy to total GDP. The analysis shows that all the variables were positively and significantly related to TGDP except TRANS which is negative and insignificant in the short run as provided in the regression analysis (OLS result). In order to determine the goodness of fit of the model, the coefficient of multiple determination ( $R^2$ ) was considered. The  $R^2$  of the OLS result indicated that 99.9% of the variation in the present state of TGDP is being explained by all the independent variables and lagged variables, while the stochastic error term explains the remaining 0.1%.

Statistically, the overall model is significant, implying that changes in TGDP can be sufficiently explained by CMANS, CAGRS, COGS, CBCS, CTRNS and CTRDS all put together. The findings also revealed that the test for autocorrelation is absent in the successful error term.

The Augmented Dickey-Fuller test was conducted to test for the stationarity of data in order to achieve a long run equilibrium model. The stationarity test i.e. ADF unit root test revealed that all the variables were stationary at second difference. Also, the Johansen co-integration test reveals and indicates six co-integrating equations on the long run at 5% significance level. This led to the conclusion that there exists co-integration i.e. a long run relationship among the variables. The long run model derived from the co-integration test revealed that contribution of Agricultural sector (CAGRS), contribution of building and construction sector (CBS), contribution of transportation sector (CTRNS) and contribution of trading sector (CTRDS) were all at variance with the theoretical expectation of positive relationship with total gross domestic product (TGDP) in the long run while contribution of manufacturing sector (CMANS) and contribution of oil and gas sector (COGS) conform to the economic theoretical expectation of positive relationship with total gross domestic product (TGDP).

The result of the parsimonious error correction model indicated that  $D(CMANS,2)$ ,  $D(CAGRS,2)$ ,  $D(COGS,2)$ ,  $D(CBS(-1),2)$ ,  $D(CTRNS(-1),2)$ ,  $D(CTRDS,2)$  were positive and statistically significant at 0.05% level of significance. This result conforms to the earlier expectation of positive relationship. However one percent change in CMANS, CAGRS, COGS, CBS, CTRNS and CTRDS will increase economic growth by about 17%, 12%, 9%, 32%, 14% and 14% respectively. The result confirmed that the overall model is statistically significant, given the f-statistics probability value of 138.8388. This implies that the R-square value of 97% is significantly different from zero. Thus the series is a good-fit. The Durbin Watson Statistics of 1.747141 is relatively close to 2 which indicate the absence of serial auto-correlation between successive error terms.

#### 5. CONCLUSION AND RECOMMENDATION

The Nigerian economy have been caught in the wools due to several economic disturbances that have resultantly not help the country to achieve her growth objective. The study empirically examines the contributions of the productive sectors' to the Nigeria economic performance from 1981 to 2016. The study gathered time-series data majorly from the Central Bank of Nigeria Statistical Bulletin. The model in the study specifies total gross domestic product of Nigeria as a function of the contributions of the manufacturing, agricultural, oil and gas, building, transport and trading sectors in the Nigerian economy. Employing the classical Ordinary Least Square estimates, ADF unit root test, Johansen Co-integration estimation techniques and Error Correction Modelling to analyse the data obtained. Based on the parsimonious error correction result, the study empirically explored that the ECM is correctly signed and significant and all the explanatory variables were positively and significantly related to the total GDP a proxy of economic performance in Nigeria. The study connects to the findings of Ahungwa, Haruna and Rakiya (2014), Aminu and Anono (2012), Cavalcanti, *et.al.* (2011) and concluded that the productive sectors in Nigeria exert positive and significant influence on the Nigerian economy for the period under investigation. The study recommends, inter alia, that the government and all other stakeholders should channel huge economic resources into investing more in the productive sectors, so that these sectors will bring about the desired level of economic growth in Nigeria, as witnessed in the European world.

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