

## SECTORAL CONTRIBUTION TO GROSS DOMESTIC PRODUCT (GDP) IN NIGERIA ECONOMY (1970 – 2012)

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### Abstract

*This work aimed at determining the effect of sectoral contributions to the GDP of Nigeria from 1970-2012. The specific objectives were to examine the trend of the sectors selected, and their effect to the Nigeria's economy over the study period, the historical secondary data was obtained from Central Bank of Nigeria (CBN), Nigerian Bureau of statistics (NBS), and federal Ministry of Agriculture and Rural Development (FMARD). The objectives were analysed using trend analysis graph, Pearson correlation and multiple regression analysis. It was observed that the various sectors (agricultural, petroleum, education, health and telecommunication sectors) over the study period has contributed to the growth of GDP of the Nigeria economy at various rates, it is believed that the sectors will contribute more in years to come to the GDP, leading to a speedy growth of the economy if effective and sustainable policy be put in place by the Government.*

**Key words:** GDP, economy, sectors, growth, Nigeria

### INTRODUCTION

Agriculture in Nigeria is a major branch of economy in Nigeria, providing employment for 70% of the population. The sector is being transformed by commercialization at the small, medium and large-scale enterprise levels. Major crops include beans, sesame, cashew nuts, and cassava, cocoa, beans groundnut, gum Arabic, cola nut, maize (corn), melon, millet, palm kernels, palm oil, plantain, rice, rubber, sorghum, soya beans and Yams [10].

In 1990, 82 million hectares out of Nigeria's total land area of about 91 million hectares were found to be arable, although only 42 percent of the cultivable area was farmed. Much of this land was farmed under the bush fallow system, whereby land is left idle for a period of time to allow natural regeneration of soil fertility. 18 million hectares were classified as permanent pasture, but had the potential to support crops. Most of the 20 million hectares covered by forest and woodlands are believed to have agricultural potential [15].

Fishery, livestock production, and crop production constitutes the Nigeria's Agricultural sector, and it's holdings are small

and scattered, and farming is carried out with simple tools. Large-scale agriculture is not common. Agriculture contributed 32% to Gross Domestic Product (GDP) in 2001 [5].

Until the 1970's, agriculture accounted for over 60 percent of Nigeria's gross domestic product Gross Domestic Product (GDP) and agricultural commodities were the country's main exports. Decades of misplaced policies, under investment and technological stagnation, however, have turned Nigeria into a net importer of food. Recently, an average of ₦24 trillion (\$ 150 billion) is spent importing food each year, and government policies such as former President Olusegun Obasanjo's Operation feed the nation during the military regime (1979), former president Alh. Shehu Shagari's (1979) "green revolution programme" and Yar Adua's (2007) "7-point agenda"- faced to turn around the agricultural sector's fortunes. With the question if the president Goodluck Jonathan's 'Agricultural transformation' initiated through 2012 will fare any better [1]. In Nigeria, the oil sector has assumed a central role in the economy in such a way that it cannot be overemphasized. Between 1981 and 1999, Nigeria received over 228 billion US dollars from petroleum export.

The inflow of foreign exchange from petroleum export has overwhelming influence on the economy. The growth in GDP since the early 70's is largely attributed to crude oil production.

Moreover, over development plans were focused on the expected earnings from crude oil export as a source of finance. More specifically, the Nigerian revenue budget since oil took a primal position in revenue attraction is directly a function of the price per barrel of crude oil and the projected total sales.

Nigeria was a predominantly agrarian economy before the discovery of oil in commercial quantity and remained so up to the early part of the 1970's. Thereafter oil exerted tremendous impact on the economy. In Nigeria's attempt to make oil exploration a lucrative business, there was a shift in its dependence from the agricultural sector to the oil sector, largely based on the innumerable benefits it derived from the later (oil Sector). This attitude has brought about a major decline in the agricultural sector and even other sectors of the economy, thereby making the Nigerian economy a mono-economy [4].

It is believed that the problem of food crises has its root in the gradual transformation of the Nigerian economy accelerated with the impact of the oil price increases during the 1970's, Nigeria who could provide her own food, regardless of its population now has to import staple commodities such as rice, sugar etc.

The agricultural sector has gradually ceased to be what it used to be because of the new rave for oil. States like Delta state, Rivers, Bayelsa, etc, are worst as they all have tales of woe to tell, as the catastrophic effects of oil spillage has led to inestimable losses that has led to gradual decline of agriculture in some areas of the region.

Many financial experts are of the view that an economy that largely depends on a sector is definitely not a healthy one. A healthy economy is one that is diversified and not mainstreamed. It appears as if Nigeria has put all her eggs in one basket, standing at the risk of losing if something should go wrong [4], [14].

A cursory glance on the quality of education in Nigeria today reveals that Nigeria has a long way from reaching neither the promised land of education for all by 2015 nor its dream of being one of the 20 best world economies by 2020. The Nigerian education system which produced world renowned scholars in the past has become a shadow of itself today. The rot in the nation's education system has reached such a deplorable proportion that if not summarily addressed now; subsequent generations of Nigerians will continue to suffer its consequences [2].

In line to consider for this study is the health sector in Nigeria.

Health care provision in Nigeria is a concurrent responsibility of the three tiers of government in the country. Private providers of health care have a visible role to play in health care delivery. The federal government's role is mostly limited to coordinating the affairs of the university teaching hospitals, federal medical centers (Tertiary health care) while the state government manages the various general hospitals (Secondary health care) and the local government focus on dispensaries (Primary health care), which are regulated by the federal government.

The total expenditure on the health care as % of GDP is 4.6, while the percentage of federal government expenditures on health care is about 1.5%. A long run indicator of the ability of the country to provide food sustenance and avoid malnutrition is the rate of growth of per capita food production, from 1970-1990, the rate for Nigeria was 0.25%. Though small, the positive rate of per capita may be due to Nigerians importation of food products [7].

From all indications, the health condition in Nigeria is highly deplorable. Among the most common diseases in Nigeria are malaria, guinea worm, pneumonia, measles, gonorrhoea, schistosomiasis, typhoid, tuberculosis, chicken pox, diarrhea and more recently, Aids. Whereas reported cases from noticeable diseases were about 1.78 million in 1991, the figure rose to sum 2.06 million by 1995. Reported deaths from diarrhea N rose from 1,404 in 1991 to 1,416 in 1995 while those from diarrhea B rose from 573 to 640 over the

same period. Malaria, on the other hand, claimed about 1,947 lives in 1991, rising to 3,268 by 1995 and measles claimed 388 in 1991 rising to 671 in 1995. Also, during the same period, deaths due to pneumonia almost doubled, rising from 855 to 1,594, while deaths due to Typhoid fever increased from 259 to 707.

The last sector to be considered in this study is the telecommunication sector; In terms of growth, Nigeria is ranked the largest and fastest growing ICT market in Africa and among the ten fastest telecoms growth markets in the world. This is as a result of the robustness of its returns on investments. The impact of this on the economic growth has become impressive. The telecommunication sector now contributes significantly to the Gross Domestic Product (GDP), which was hitherto dominated by the Oil sector. Also the Nigeria telecommunication face sheet released by the United State embassy in Nigeria in October 2011, noted that "The ICT Sector is the fastest and most robust sector of the Nigeria economy. Contributing more than the manufacturing, banking and solid minerals sectors combined". The fact sheet also revealed a service sector contribution to GDP 2010 chart, showing that ICT contributed 25%, while utilities 17%, finance and insurance 20% Transport 15%, Real Estate and business services, 10%, Hostels and restaurants 3% and other 10%.

Meanwhile, if statistics on the fact sheet are anything to go by ICT investment spiked 700% in 2001 and received double-digit growth every subsequent year. A factor that saw investment rising by 13% to 518 billion in 2009 [9].

The agricultural sector, once the bedrock of the Nigerian economy has witnessed a society decline since the discovery and commercialization of Nigeria's abundant crude oil products. While on the other hand, the oil sector has witnessed some problems ranging from bunkering of petroleum products, pipe line vandalization, non-functional refineries and lack of proper accountability on income generated from the sector [3].

Health, telecommunication and education sector in Nigeria are faced with similar

problems which include mismanagement and embezzlement of fund allocated to the sectors leading to the employment of poor infrastructural facilities, and poor internal management of the sector [8].

Objectives of the Study:

- to examine the trends of the selected sectors during the study period;
- to analyze the effect of the various sectors to the Nigeria's Gross Domestic Product of the economy over the study period;
- to analyze the relationship between the sectors and economic growth.

## MATERIALS AND METHODS

Nigeria is situated in the West Africa between the latitude of 40-140<sup>0</sup> and longitude of 30-140<sup>0</sup> East of green which meridian, this is entirely within the tropical zone. It is bounded on the South by the Atlantic Ocean, in the North by Niger Republic, the West by Benin republic and in the North East by Cameroun. The country is the most populated in the African continent and has an estimated population of 40,003,542 people mixed of over 250 tribes and has a total land area of 923,768, and 00 Square kilometers [11].

Nigeria is made up of 36 states and a federal territory capital comprising of 6 geopolitical zones- the north- central, North-East State, South East, South-Southern State and South West with 774 local government areas and its official language is English [13].

The country is blessed with abundant human and natural resources like coal, Columbites, gold, iron, lignite ethanol, phosphate, tin, ore and gas, cocoa, cement, steel iron ore, rubber, rice, salt, limestone, marble, plywood etc, fertile land and a variety of climatic conditions from tropical in the high lands [6].

Nigeria is in a good position to develop her abundant human and natural resources for increased agricultural productivity and also to be the basic and the head in the exportation of agricultural products worldwide [12].

### Sampling Procedure

The study relied mostly on the use of aggregate secondary data. The study made use of secondary data mainly from various issues of central Bank of Nigeria (CBN) annual reports

and statement of account, Federal Ministry of Agriculture and Rural Development (FMARD) and National Bureau of Statistics (NBS).

**Method of Data Analysis**

Data collected were analyzed using trend analysis graph, multiple regression analysis and Pearson correlation. The objective one was analyzed using trend analysis graph, while objective two was analyzed using Pearson correlation and multiple regression analysis.

**Model Specification**

Regression Model is as specified below

$$Y = f(X_1, X_2, X_3, X_4, X_5, \dots, X_n, e)$$

where

Y = GDP(Gross Domestic Product)

X<sub>1</sub> = petroleum sector revenue (₦)

X<sub>2</sub> = agricultural sector revenue (₦)

X<sub>3</sub> = education sector revenue (₦)

X<sub>4</sub> = health sector revenue (₦)

X<sub>5</sub> = telecommunication sector revenue (₦)

e = error term

**RESULTS AND DISCUSSIONS**

**The trends of the selected sectors:** The trends examined the petroleum sector, agriculture sector, education sector, health sector, telecommunication sector and the Gross Domestic Product (GDP) of the Nigeria economy.

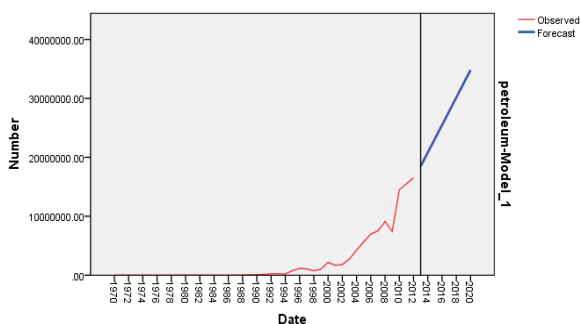


Fig.1.Trend Analysis graph of the Contribution of Petroleum. Numbers are in naira (₦)  
Source: CBN statistical bulletin 2014.

The graph above ( Fig.1.) shows that from 1990 to 1994 the income generated from the petroleum sector was negligible, it experienced a drastic increase reaching ₦10,000,000 with a steep decline in 2009, rising again in 2010 steeply but still below ₦20,000,000 and from 2011 to 2012 it experienced an increase at a

decreasing rate. Petroleum income generation is expected to increase drastically from 2013 to 2020 above ₦30, 000,000 in favor of GDP.

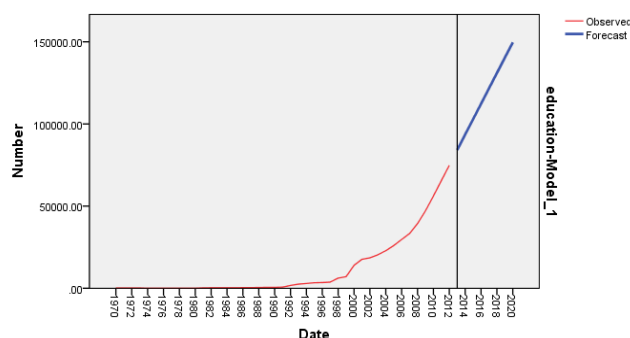


Fig.2.Trend Analysis graph of the Contribution of Education  
Numbers are in naira (₦)  
Source: CBN statistical bulletin 2014.

Following the graph above, it was observed that from 1990 to 1999, income generation from the education sector was at a sluggish increase, it rose from 2000 to 2012 above the point of ₦50,000 but still below ₦100,000 it is expected that from 2013 to 2020, income from the education sector will experience a drastic increase up to the point of ₦150,000, leading to a rapid growth in GDP.

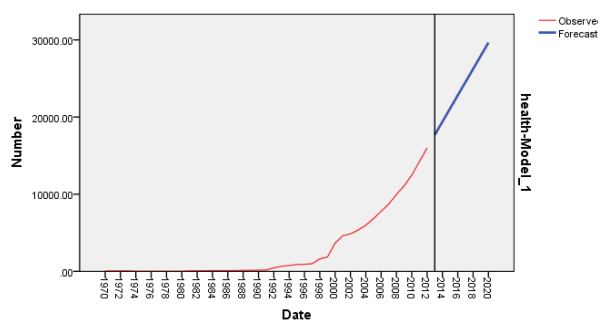


Fig.3.Trend Analysis graph of the Contribution of Health. Numbers are in naira (₦)  
Source: CBN statistical bulletin 2014.

Income generation from the health sector experienced a sluggish rise from 1990 to 1999, from 2000 it experienced a significant increase till 2012 crossing the point of ₦10,000, it is expected to rise steeply from 2013 to 2020 to the point of ₦30,000 in favor of GDP. Telecommunication sector has its income to the GPD rising from 2000 to 2004 at a gradual rate, it experienced a steep increase from 2005

to 2006 above ₦200,000. It witnessed an increase at a decreasing rate from 2007 till 2010 when it experienced another drastic increase above ₦300,000 in 2012.

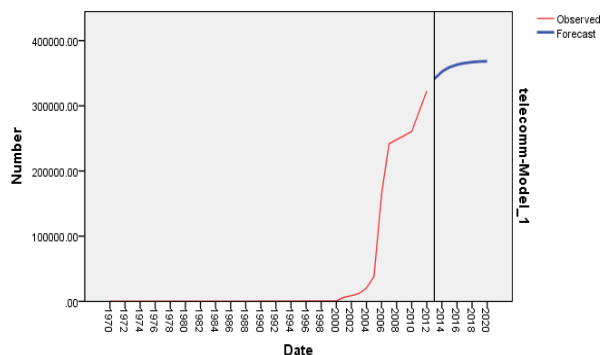


Fig.4.Trend Analysis graph of the Contribution of Telecommunication. Numbers are in naira (₦)  
Source: CBN statistical bulletin 2014.

It is expected to increase at a decreasing rate from 2013 to 2020 due to an improved investment environment in the Nigeria telecommunication sector resulting from favourable government policy towards the sector.

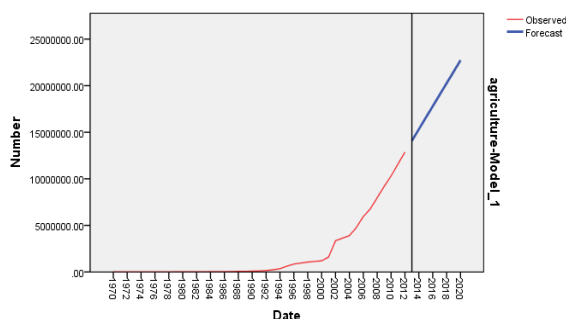


Fig.5.Trend Analysis graph of the Contribution of Agriculture. Numbers are in naira (₦)  
Source: CBN statistical bulletin 2014.

Revenue from the agricultural sector (Fig.5.) experienced a gradual increase from 1991 to 2000, rose steeply in 2001 to 2002, where it maintained another gradual increase at a decreasing rate till 2004 reaching the point of ₦5,000,000 then witnessed another drastic rise from 2004 to 2012 hitting the point of ₦15,000,000. Revenue generation from agriculture is expected to rise steeply from the point of ₦15,000,000 in 2013 to 2020 above ₦20,000,000.

The GDP of Nigeria began a gradual increase from 1998 to 2010, hitting a point slightly below ₦10,000,000 in 2012. The GDP of Nigeria economy is expected also to have a steep increase from 2013 to 2020 rising above ₦40,000,000 according to the graph, leading to an improvement in the Nigeria Economy, due to an increase in the contribution of the various sectors to the GDP as a result of improved policy and even distribution of government’s attention to the various sectors of the economy (Fig. 6).

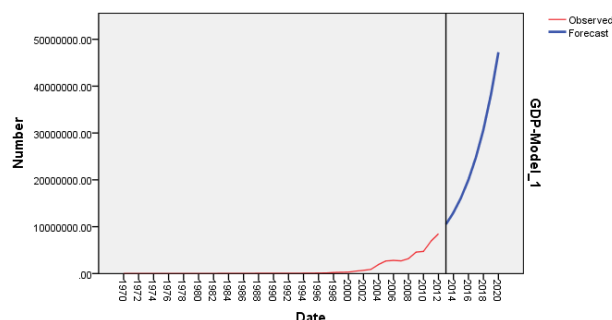


Fig.6.Trend Analysis graph of GDP. Numbers are in naira (₦)  
Source: CBN statistical bulletin 2014.

**The effect of the various sectors to the Nigeria economic growth**

Multiple Regression Analysis was used to analyze the effect of the various sectors to the Nigeria economy.

Double log functional form was chosen as the lead equation based on the R<sup>2</sup>, coefficient of multiple determinations, F- ratio, number of significant variables, and the conformity of the signs of regression coefficient with apriori expectation.

The value of R<sup>2</sup> which was 0.984 means that 98.4% was variation observed in the dependent variables included in the model.

Petroleum, education and telecom had a positive and significant relationship with GDP while health and agriculture had a negative and significant relationship with GDP.

Revenue generated from petroleum was significant at 1% and positively related to GDP. This means that as income on petroleum increased, the value of GDP also increased. Increased income on petroleum could be due to the increasing price on petroleum. The more

the price on petroleum, the more the income and the more the contribution to GDP.

Revenue generation from health was significant at 1% and negatively related to GDP. This means that as income generated from health increased, the value of GDP decreased and vice-versa., this is because poor health condition of a large number of the population reduces the value of GDP, and also going by the fact that the total expenditure on the health care as % of GDP is 4.6, while the percentage of federal government expenditures on health care is about 1.5%.as postulated by [3].

Table 1. Summary table of the Multiple Regression Analysis

Variables	Linear	Exponential	Semi-log	Double-log +
Constant	-39613.445 (-0.664)	9.415 (45.265) ***	1.381 (1.159)	-0.9510141.709 (-3.159)
Petroleum	0.017 (0.249)	4.659E-008 (0.194)	-0.040 (0.251)	5115069.98 (12.86) ***
Education	203.026 (5.482) ***	0.000 (-2.693) ***	1.137 (1.175)	11125193 (4.551) ***
Health	-722.610 (-5.228) ***	0.002 (4.310) ***	-1.299 (1.416)	-10280952.79 (-4.435) ***
Telecom	0.697 (0.336)	-1.450E-00 (-2.120) **	0.327 (6.432) ***	677413.479 (5.270) ***
Agriculture	0.294 (1.757) **	2.579E-007 (0.442)	0.651 (2.753) **	-1658190.113 (-2.773) ***
R <sup>2</sup>	0.978	0.852	0.858	0.984
R <sup>-2</sup>	0.975	0.833	0.834	0.981
F-ratio	334.854 ***	42.762 ***	36.284 ***	365.674 ***

Source: CBN statistical bulletin and field survey 2014.

( ) : figures in parenthesis are t-values.

\*\*\* : Significant at 1%, \*\* : Significant 5%, \* : Significant 10%

In education, the income generated was positively related to GDP, and significant at 1%, this means that as income on education increased, the value of GDP also increased. This because the higher the number of the population undergoing education at various level, the higher the income generated from the education sector and the more skilled the labour force of the country, leading to an increased value of GDP.

Income generated from telecommunication was significant at 1% and positively related to GDP. This implies that as income on telecommunication increased, the value of GDP increased. The increase in the income from telecom sector could be as a result of its patronage by individuals and firms in order to reach out for suppliers and customers around the world in order to improve sales and services which in turn gives rise to a higher value of the country's GDP

Agricultural income was significant at 1% and negatively related to GDP, meaning that as income from agriculture increases, the value of GDP decreases and vice-versa. This means that contribution of agriculture to GDP growth has declined from 70% in 1970's to about 30% in 2001 according to [2]. And this is attributed to the Nigeria's attempt to make oil exploration a lucrative business, thus shifting its dependence from agricultural sector to oil (petroleum) sector based on the innumerable benefits it derived from it (oil sector). Thus making Nigerian economy a mono-economy [4].

**The relationship between the sectors and economic growth of Nigeria**  
*Pearson Correlation showing relationship between the selected sectors and economic growth of Nigeria( GDP).*

Table 2. Summary table of the Pearson's Correlation Coefficient

	Pet	Edu	Health	Tele	Agric	GDP
Pet	1					
Edu	0.982**	1				
Health	0.971**	0.996**	1			
Tele	0.945**	0.934**	0.928**	1		
Agric	0.981**	0.993**	0.992**	0.958**	1	
GDP	0.975**	0.977**	0.959**	0.936**	0.974**	1

Source: CBN statistical bulletin 2014.

\*\* = significant at 5%

The table above shows that there is a positive relationship between petroleum and education, however the relationship is significant at 5%. This is because, the higher the number of educated population, the more experienced and productive the staff working under the petroleum sector becomes, leading to an increase in output and its income to the GDP

Education and petroleum has a positive relationship with the health sector which is also significant at 5%, this is due to the fund from the petroleum sector which used to revitalize the health sector and on the other hand, the greater the number of educated population, the higher the number of professional personnel in the health sector which include the nurses and doctors and also the more the educated the population becomes, the more they become aware on how to manage their health and prevent illness which lead to a healthy work force. Together contributing to increase productivity and rise in GDP.

Health as well as education and petroleum have a positive relationship with the telecommunication sector at a 5% level of significant respectively. Health of staffs are essential and also one of the factors affecting productivity in the telecom sector, a telecommunication sector which takes the health and safety of its workers as a priority will experience a higher yield which increased GDP.

Also the telecommunication sector operates in the absence of technologically competent personnel which is obtained through education. The higher the educated and experienced personnel in the telecom sector in terms of management and technology, the higher their income and contribution to GDP.

On the other hand, petroleum is needed in the telecom sector as one of the most essential input to run its day-to-day activities, a hike in the price of petroleum leads to a decrease in the income generated by the telecom sector and vice-versa, affecting GDP adversely or favorably as the case may be.

The telecommunication sector, health, education and petroleum all had a positive relationship with agriculture and significant at 5% respectively. This is due to the importance of communication between farmers, suppliers and buyers from far and wide which increase farm income, yield and affect GDP positively. Also health of farmers is important for high productivity in the farm which improves GDP. Education is another variable, very essential to all farmers both in fishery, crop and livestock productions which improves performance as a result of good management of the farm,

mechanization and improved varieties of seedlings and breeds, these together enhance, productivity and yield thereby making the GDP attractive.

Petroleum availability for farm product preservation and operation of tractors etc. improves farm yield and in the long run favors GDP.

From the above table, all the considered sectors (petroleum, education, health, telecommunication and agriculture) increased the GDP of Nigerian economy because they all maintain a positive relationship with the GDP, that means they all go in the same direction with the country's GDP, in other word as they rise, GDP rises and vice-versa. And all have a significant relationship with GDP at 5% level of significant respectively.

## CONCLUSIONS

Going by the study, it was observed that the telecommunication sector in recent years and the petroleum sector are the leading income earners among the selected sectors, this is because of governments priority in the oil sector, paying less attention to other sectors of the economy, most especially agricultural sector.

Government should adopt a good policy that will favor and enhance the productivity of each sector and ensure even distribution of its priority to each of the sectors.

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