



Impact of Federal Government's Healthcare Expenditure on Economic Growth of Nigeria

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Abstract

The study examined the impact of Federal Governments Healthcare expenditure on economic growth of Nigeria using time series annual data for thirty three years (1981-2013) sourced from the Central Bank of Nigeria Annual Reports. The ordinary least square method (OLS) of data analysis was employed and the data properties were tested for unit root using Augmented Dickey Fuller. The result shows that there is a positive relationship between government total expenditure on health and economic growth. Also, there is a positive relationship between recurrent expenditure and capital expenditure on economic growth with both being significant at 1% levels of probability. Causality test shows a uni-directional relationship from GDP to recurrent expenditure and total expenditure; the Chow test shows a significant difference in budgetary allocation with particular reference to the year under review. It is therefore recommended that the government should keep investing in the health sector to avoid capital flight.

Keywords: Healthcare expenditure, Augmented Dickey Fuller, Regression Analysis, Stability test, Economic growth

JEL Classification: C12; I12; I15.

1. Introduction

Healthcare is the diagnosis, treatment and prevention of disease, illness, injury and other physical and mental impairment in human beings. Healthcare is delivered by practitioners in allied health, dentistry, midwifery, medicine, nursing, and other health professions. It refers to the work done in providing primary, secondary and tertiary care as well as in public health (Wikipedia, 2015). However, World Health Organization (WHO) defines health as a state of complete physical, mental and social well-being. In 2010, it was said that public health expenditure consist of recurrent and capital spending from government budgets, external borrowings and grants (including donations from international agencies and NGOs) as well as compulsory health insurance funds (Eneji *et al*, 2013).

There are several methods of describing the funding of health care systems. These usually consider both the funding and service delivery arrangements of the system. There are essentially four methods of funding health care services; they are general taxation, social health insurance, private health insurance and direct payments by patients. Different combination of these exists in practice. Sustainable health care systems are built on dependable access to human, capital and consumable resources (Essien, 2010). Nigeria's government signed the Abuja declaration in 2001, which commits them to spending 15% of the total government budget on health. In 2013, the Nigerian Government allocated 5.6% of the total government budget on health at federal level.

At the 58th World Health Assembly held in Geneva, Switzerland on May 16-25, 2005, developed and developing countries attention was drawn towards ensuring universal access and coverage in health services provision. Further recognition of the importance of universal coverage and equity in health services provision led WHO to propose at the

2010 World Health Assembly issues that will address financing of health that will ensure universal coverage (Ataguba and Akazili, 2010).

The following Economic of West African States (ECOWAS) spent more than Nigeria on health in 2011: Sierra Leone, Mali, Niger, Burkina Faso, Senegal, Benin, Togo, Liberia, Ghana, Cape Verde, and Gambia. Between 1995 and 1998, government spending during the Abacha regime was 7% of the total budget, while during Obasanjo regime in 1999 through to 2007 the allocation to health fluctuated between 7% and 9%. During Yaradua's regime, it increased to 10% of total GDP; from then on till 2013 it has dropped to 5.8% all of which is lower than the agreed 15% of the Abuja declaration.

The WHO recommends that total health spending, including both government and private spending, should amount to a minimum of \$54 per person (this was expressed in 2005 dollars)

In 2013, the Government of Nigeria allocated \$10.90 per person in Nigeria, which is the equivalent of NGN 1,709 per person for health, down from \$11.50 or NGN 1,782 in 2012.

The wealth and poverty of nations can, and have often been analyzed in terms of the state of health of citizens of nations. Health is fundamental to economic growth and development and is one of the key determinants of economic performance both at micro and macro levels. This derives from the fact that health is a form of human capital that increases an individual's capability and a component of human well being (Bloom and Canning, 2003) which is a means of identifying economic development.

Recognizing that recent improvement in Nigeria's macroeconomic performance have not translated into noticeable improvement in the health system and quality of life of Nigerians. The Federal Government's 7-Point Development Agenda has underscored human capital development as the bedrock of this national agenda with explicit reference to the health sector. Access to quality health care and prevention services are therefore considered vital for poverty reduction and economic growth, particularly as Nigeria is lagging behind in attaining the health related MDGs (Essien, 2010).

The value for Health expenditure, public finance expressed as a percentage of total health expenditure, in Nigeria was 36.69 as of 2011. Over the past 16 years this indicator reached a maximum value of 37.25 in 2008 and a minimum value of 20.09 in 1996. Public health expenditure consists of recurrent and capital spending from government (central and local) budgets, external borrowings and grants (including donations from international agencies and nongovernmental organizations), and social (or compulsory) health insurance funds. Total health expenditure is the sum of public and private health expenditure. It covers the provision of health services (preventive and curative), family planning activities, nutrition activities, and emergency aid designated for health but does not include provision of water and sanitation.

Federal government funding of the health sector will be the focus of this research since it shoulders the bulk of health care financing in Nigeria which comprises of budgetary allocations at all levels (Federal, State and Local government). Health care financing does not stop with raising sufficient resources to finance health care needs of countries, but also on how to ensure affordability and accessibility of healthcare services, equity in access to medical services as well as guarantee financial risk protection.

Healthcare spending in Nigeria is segmented into private and public spending. While public expenditures in Nigeria account for just 20-30% of total health expenditures, private expenditures accounts for 70-80% of total health expenditure. The dominant private expenditure is through out-of-pocket, and this accounts for more than 90% of private health expenditures (Soyibo, 2004, Soyibo *et al*, 2009).

Health care financing has serious implications for the welfare of Nigerians. The outbreak of the global financial crisis in 2008 was a heavy blow to the world economy and its negative impacts are still being felt especially in developing countries that are import dependent for health, food, and other basic necessities. Low level of nutrition reduce productivity by damaging physical and mental health; from conception, infant, school age and onwards. (Eneji *et al*, 2013).

1.1 Statement of the Problem

The health care funding system in Nigeria is predominantly from general taxation by the government which is never sufficient for the provision of good health care service delivery in the country. It is presently facing numerous challenges. In Nigeria, health care financing strategies have failed to achieve the expected goals. This is due to failure of reviewing the existing health strategies to combat with the new health problems and the neglect of the health sector especially the health problems of the youthful segment of the country. This is obvious from the effects of these health problems on the labour, research and innovations, technological and sustainability capacity of the population, which have constrained the efforts towards economic growth. More so, apart from the threat of human existence, they have led to a ravaging growth in orphanage and dependency ratio in the economy.

The sector has lost qualified personnel to more profitable countries depriving citizens their right to a better service. The funding of health care in Nigeria has often been described as inadequate with budgetary provision to health hardly exceeding 3% of the nation's total budgetary provisions (Orubuloye and Oni, 1996; Ogunbekun, 1991; Esien, 2010).

Quoting from the president of the Nigerian Medical Association (NMA), over USD 500 million is cost annually to medical tourism. The Nigerian High Commissioner to India revealed that 80% of the Indian visas granted to Nigerians in 2011 were for the purpose of medical treatment (Eneji *et al*, 2013)

It has been observed that the contribution of health sector to the development of Nigeria is still marginally low. This is certainly worrisome if the Nigerian economy is to witness economic growth and development over a consistent period of time. Given the recent position of Nigeria as the largest economy in Africa and 26th in the world and arguments arising as to whether or not the country deserves a spot in the Group of 20 (G 20), and the fact that citizens are yet to benefit from the new declaration arising recent GDP rebasing.

The health status indicators for Nigeria are among the worst in the world. The life expectancy at birth is 49 years while the disability adjusted life expectancy at birth is 38.3years; vaccine-preventable diseases and infectious and parasitic diseases continue to exert their toll on health and survival of Nigerians, remaining the leading causes of morbidity and mortality. Nigeria has the highest number of HIV infected persons in the African continent and the fourth highest tuberculosis burden in the world. For a country that can claim to be having the largest economy in Africa, why are we ranked by (WHO) World Health Organization 187 out of 190 countries with the poorest health care system? (World Health Organization, 2014).

Health service delivery in Nigeria has suffered neglect from time to time, thereby endangering the national productivity and economic growth (GDP) which could have acted as a catalyst to the realization of formulated economic development policies. Hence, reviewing the existing health financing strategies as part of economic growth effort is one of the effective ways in the realization of economically set goals. Thus, the study shall attempt to answer the following questions: what has been the trend of federal government healthcare financing over the years?; what is the relationship between federal government healthcare financing and economic growth with particular reference to the period of study?

Therefore, the broad objective of this research is to examine the impact of federal government's healthcare financing on the economic growth of Nigeria (1981-2013). The specific objectives of this study are to: describe the trend of federal government healthcare financing (expenditure) over the years under review (1981-2013); determine the relationship and causality between economic growth (GDP) and health expenditure; determine the stability test of the budgetary allocation of the government to healthcare with respect to years under review and offer recommendations based on research findings with a view to improving health care financing in Nigeria. The hypothesis to verify is that, there is no significant relationship between health care financing and economic growth with particular reference to the period of study.

1.2 Justification of the Study

In view to the above statement of problem on the healthcare financing and the effect on economic growth of any nation, the study will serve as guide to government in area of budgetary allocations with a view to establishing if there is a positive effect of health care financing on the national output. More so, it would draw the attention of the government and cause her to give full focus on the health sector, especially the health problems of the country. While it will also assist the stakeholders in health sector in knowing the magnitude of effect of healthcare financing on economic growth as, it will guide them in healthcare policy formulation. It will show various healthcare financing strategies that can be employed to increase the level of productivity or output in the economy.

2. Literature and Theoretical Framework

2.1 The Wagner's Law/ Theory of Increasing State Activities

Adolf Wagner (1883) formulated the "Law of the increasing extension of state activity". He asserted that there is a long run propensity for the scope government to increase with higher levels of economic development. Wagner's hypothesis deals with the growing relative importance of government activity and has come to be known as Wagner's law. According to Wagner, there are three reasons to expect an expanding scope of public activity; first as nations develop there is an increased complexity of legal relations and communication along greater urbanization and population density and it forces government to produce the regulatory framework that will accompany the greater intricacy of relation among economic agents.

Second; as income increases, societies demand more education, entertainment, a more equitable distribution of income, and generally more public services. Finally the technological needs of an industrialized society require larger amount of capital infrastructure than are forthcoming from the private sector, hence the need for government to step in to fill in the gap. Wagner's law has been tested empirically for various countries and the result differ considerably. Musgrave and Musgrave (1988), in support of Wagner's law, opined that as progressive nations industrialize, the share of the public sector in the national economy grows continually.

2.2 The Keynesian Theory

Keynes discussed the relation between public expenditures and economic growth, he regarded public expenditures as an exogenous factor which can be utilized as a policy instruments promote economic growth. From the Keynesian thought, public expenditure can contribute positively to economic growth. Hence, an increase in the government consumption is likely to lead to an increase in employment, profitability and investment through multiplier effects on aggregate demand. As a result, government expenditure augments the aggregate demand, which provokes an increased output depending on expenditure multipliers

2.3 Musgrave and Rostow's Development Model

The economist, Musgrave, and the economic historian, Rostow, (separately) suggested that the growth of public expenditure might be related to the pattern of economic growth and development in societies. Three stages in the development process could be distinguished: The early development stage where considerable expenditure is required on education and on the infrastructure of the economy (also known as social overhead capital) and where private saving is inadequate to finance this necessary expenditure (in this stage, government expenditure must thus be a high proportion of total output);

The phase of rapid growth in which there are large increases in private saving and public investment falls proportionately; and High income societies with increased demand for private goods which need complementary public investment (e.g. the motor car and urbanisation). The increasing need in high income societies for skilled labour leads education to become increasingly an investment good for society as a whole. Increased population movements lead to the development of urban slums. Such factors and others lead once again to an increase in public expenditure in relation to total output.

2.4 Empirical Review

Dauda (2001) in her empirical study of the role of human capital in economic development, using Co-integration tests and Error Correction Mechanism (ECM) discovered that there was a feedback mechanism between human capital formation and economic development in Nigeria. She emphasized the need for the Nigeria government to strengthen educational sector. Though, her study recognized the health component of the human capital but major health parameters like infant mortality rate, maternal mortality rate, life expectancy and health expenditure were not included in the model but focused more on the educational variables such as school enrolment at both level, labour force and real gross capital formation which this study deems as a gap in the recent pragmatic approach to the study of human capital formation in the parlance of health economics.

Baldacci (2004) explores the role played by health expenditures and found that spending on health within a period of time affects growth within that same period of time. Bloom et al. (2004) focus on the labour productivity effects of health on economic growth, where improvements in health will lead to an increase in per capita income. Their main result is that health has a positive and significant effect on economic development. Empirically, a high level of public health goes hand-in-hand with a high level of economic development.

Carrin *et al* (2007) documented that, how health systems are financed largely determines whether people can obtain needed health care and whether they suffer financial hardship at the instance of obtaining care. However, a high unemployment rate, increasing prices and the difficult economic situation for the majority of the poor population has severe consequences on the health status of Nigerians. (Eneji *et al*, 2013).

Finlay (2007) concluded that health plays a role in economic development through education incentive effects. He said that people who are healthy live longer and so are encouraged in investing more in education as returns to education in form of higher skilled wages.

Riman and Akpan (2012) investigated the causal direction and long run relationship between government health expenditure, poverty and health status, in Nigeria. They employed the Granger causality test and Vector Error Correction Model (VECM) in establishing a strong causal bi-directional relationship running between life expectancy and poverty in Nigeria. Their study also reports the existence of a long-run relationship between poverty and health status. However, they found a non- significant long run relationship between health status and government health expenditure. They concludes that policies that would improve health status should be such as would promote adult literacy level, reduce the poverty and income disparity since, increasing budgetary allocation to funding health sector alone without reducing poverty level, would not be sufficient to improve the health status of the country.

Scheffler (2004) argues that health may not be treated as output (life expectancy, adult survival rate etc.) rather it needs to be treated as input (health expenditure). In doing this, Scheffler observed that elasticity of health care spending with respect to GDP is greater than one, meaning that if GDP increases by 10 percent then healthcare spending goes up by more than 10 percent. Consequently, this study obviously shows that the developed countries spend more on health as compared to developing countries (Ogundipe *et al*, 2011)

Olorunfemi, *et al.*, (2008) studied the direction and strength of the relationship between public investment and economic growth in Nigeria, using time series data from 1975 to 2004 and observed that public expenditure impacted positively on economic growth and that there was no link between gross fixed capital formation and Gross Domestic Product. He averred that from disaggregated analysis, the results revealed that only 37.1% of government expenditure is devoted to capital expenditure while 62.9% share is to current expenditure.

Abu, (2010) argued that rising government expenditure on health increases economic growth. They suggested that government should raise its expenditure in the development of the health sector since it enhances productivity and economic growth. Berger and Messer (2002) view health as a form of capital such that it is a consumption good that yields direct satisfaction and an investment good that yields direct utility through increased productivity, fewer sick days and higher wages (Eneji *et al.*, 2013).

In this vein, Bakare and Olubokun (2011) examined health care expenditures and economic growth in Nigeria using ordinary least squares multiple regression analytical method and employed data covering 1970 to 2008. Their study showed a significant and positive relationship between health care expenditures and economic growth in Nigeria and concluded that Nigerian Government should pay attention to health sector not only by increasing its budgetary allocation but also ensuring appropriate implementation and adequate monitoring of the budget. While Odior (2011) investigated the potential impact of increase in government expenditure on health in Nigeria using computable general equilibrium (CGE) model and discovered that government health expenditure is significant in explaining economic growth in Nigeria and concluded that more resources should be channeled to health sector to provide quality of health to its citizens. Owolabi and Okwu (2010) observed in their study that human resource development is an important variable in economic growth bracket in Nigeria and they recommended among other things that government should boost revenue allocation to the health and education sector of the economy for steady and sustainable growth.

Some authors (Abu and Abdullahi, 2010) established a negative relationship between increased government expenditure and economic growth; others (Bakare and Olubokun, 2011) still found that the relationship is unidirectional that government expenditure impact very little on growth and that growth has no impact on government expenditures.

Lustig (2006) observed that health is responsible for approximately one-third of long term economic growth. He used Mexico over 1970-1975 data and life expectancy and mortality rates for different age groups as health indicators, he considered health to be an asset with essential value as well as instrumental value. Good health according to him is a source of well-being and highly valued throughout the world. Scheffler (2004) identified 3 mechanisms by which health has become important in what is called the demographic transformation. The link of health and economic growth, He tried to link decrease in infant mortality with the attitude of people in developing countries with large families because of high infant mortality. With better educated population, they tend to become healthier and more resources are expended on fewer families rather than on multitude. Another fact is that ill health is a major cause of poverty, and not the reverse. When one is sick there is high tendency for the person to become poorer if the sickness persists. (Ogundipe *et al.*, 2011).

Odior (2011) conducts a study on the relationship between health and economic growth by using integrated model over the period 2004-2005 to investigate the impact of government expenditure on health on economic growth. The finding suggests that the re-allocation of government expenditure to health sector is significant in explaining economic growth in Nigeria. Similarly, Ogundipe and Lawal (2011) used ordinary least square OLS to examine the impact of health financing on economic growth over the period 1985-2009, the authors suggested that funds are properly channeled and appropriate expended to both the recurrent and capital project in the health, the existence of positive relationship between economic growth and health would more widen.

Oni (2014) concluded using regression that gross capital formation, total health expenditure and labour force productivity are important determinants of economic growth in Nigeria. The result shows that public health expenditure has a vital relationship with growth and development of any nation. Grimard and Harling (2004) conducts panel data analysis covering 91 countries, using an augmented Solow growth model and notification data of tuberculosis incidence from 1981 to 2000, finds that countries with a lower burden of tuberculosis grew faster than those which were more heavily afflicted. They found a persistent effect of between 0.2 and 0.4 percent lower growth for every 10 percent higher incidences of tuberculosis, which corresponds to an annual loss of between US\$ 1.4 and 2.8 billion in economic growth worldwide.

Aranda (2010) noted that the expectation of improved health status and that health status is governed by health investment. The demand for health care is derived from the demand itself for health. Both health care financing and improved health status are means to an end; the end is increased productivity and national development. Improved health status of a country decreases the total amount of sick time by producing more healthy days, weeks, months and years. This is likely to present an opportunity for increased GNP by the existence of more working hours. (Eneji *et al.*, 2013).

Bloom *et al.* (2001) proved there's a significant and positive effect of health on economic growth. They suggested that a one year improvement in a population life expectancy contribute to a recent increase in output. In the field of health economics, the endogenous causality between health and income has been the topic of several studies whose purpose is

to establish the direction of causality. They also explained the direction of the causality with education, indicating healthy people live more and have higher incentives to invest in their abilities since the present value of the human capital formation is higher. The higher education creates higher productivity and consequently higher income (Oni, 2014).

Nwaobi (2004) observed that the Nigerian Health Sector has remained under developed and the quality of life of the average citizen has coarsened progressively with growing numbers of citizens below the critical poverty level. This according to him is due to the fact that the country's health sector has not experienced the necessary managerial, institutional and structural changes that would guarantee rapid and sustainable growth conducive to acceptable minimum standard of living. The productive and technology bases, which form the prime movers of the health sector is weak and the sectoral linkages are scarce. Poor and inconsistently health policies, gross health sector mismanagement and weak inter sectoral linkages are high on the list of causes. Increase in government expenditure and growth in per capital output in Nigeria does not imply an increase in social welfare and health status in particular.

Ogundipe and Lawal (2011) concluded that greater emphasis be placed on the improvement of the quality and type of health to be provided. This can be achieved by improving the facilities of all segments of health sector; if funds are judiciously spent to the right channels the effects of this finance will be direct and substantial.

3. Methodology

3.1 Study Area

Nigeria is located in West Africa and shares land borders with Republic of Benin in the west, Chad and Cameroon in the east and Niger in the north. Its coast lies on the Gulf of Guinea in the south. Its land area is 923768km² and according to 2013 estimate it has a total population of 174,507,539. In 2014, Nigeria's economy became the largest with \$500billion and overtook South Africa to become the 21st largest economy. By 2050, Nigeria is expected to become one of the world's top 20 economies. It has a HDI of 0.504 as at 2013 (Wikipedia, 2015).

3.2 Source of Data

The study made use of secondary data from 1981-2013. These were data on Gross Domestic Product, Capital Expenditure on Health and Recurrent Expenditure on Health. These data were sourced from the Central Bank of Nigeria's annual report for various years.

3.3 Method of Data Analysis

This research made use of descriptive and inferential statistics. Descriptive statistics was used to describe and provide simple summaries about the health variables adopted in the study. It involves the use of graphs, charts and tables to describe a given observation. They were used in this study capture the objective of describing the trend of federal government's expenditure on health.

Inferential statistics are techniques that allow the use of samples to make generalizations about the population from which sample are drawn. This research used a multiple regression to estimate the relationship between healthcare financing and economic growth.

Since the data used are time series data, we first subjected each series for unit root. This need is borne out of the fact that if a time series data is non-stationary, the regression performed on these variables with unit root will be "spurious" (Granger and Newbold, 1974), "nonsense" (Yule, 1926) or just "dubious", (Phillips, 1987). However, Dummy variables were used to test for stability of the data. The Software used in the analysis was E-views version 4.0.

3.4 Model Specification

To examine the significant effect of federal government's healthcare financing on economic growth, this research used secondary data gotten from the Central Bank of Nigeria 1981-2013. The model using Cobb-Douglass production function is as specified below:

$$Y_i = \beta_1 X_{2i} \quad X_{3i} e^{u_i} \quad \text{equation (1)}$$

Where; $\alpha = \ln\beta_1$

Since the Cobb-Douglass is intrinsically linear, then equation (1) becomes:

$$\ln Y_i = \alpha + \beta_1 \ln X_{1i} + \beta_2 \ln X_{2i} + \dots \ln U_i \quad \text{equation (2)}$$

3.4.1 Model 1: Composite Model

Aggregate output is expressed as a function of health expenditure.

$$Y = f(TE) \quad \text{equation (3)}$$

$$\text{Log } Y = \beta_0 + \beta_1 \text{TE} + U \quad \text{equation (4)}$$

LogY= Gross domestic output

TE= Total health expenditure.

3.4.2 Model 2: Disaggregated Model

Knowing that the health expenditure comprises of capital and recurrent expenditures, the equation is further broken down to give the disaggregated exponential equation of the form:

$$\text{Log } Y = f(\text{CE} + \text{RE}) \quad \text{..... equation (5)}$$

Y= Gross Domestic Product

CE= Capital Expenditure on Health

RE=Recurrent Health Expenditure

f=functional notation

In explicit form, the model is further specified to give

$$\text{Log } Y = \beta_0 + \beta_1 \text{CE} + \beta_2 \text{RE} + U \quad \text{..... equation (6)}$$

CE, RE and Y have the same definition as before.

U is the white noise with the usual stochastic assumption of zero mean and non-serial correlation

β_0 is the intercept

β_1 and β_2 = slope or regression co-efficient of the Independent variables to be estimated

3.4.3 Model 3: Chow Breakpoint Test

To test for stability of the data on healthcare financing over the years or to determine if the establishment of the National Health Insurance Scheme in 1999 caused a significant change in the budgetary allocation of the Nigerian government. The Chow breakpoint was adopted as specified below:

$$Y_t = \alpha + \beta_1 X_1 + \beta_2 X_2 + U \quad \text{..... equation (7)}$$

$$\frac{\text{RSS}_R - \text{RSS}_{UR}/k}{\text{RSS}_{UR}/(n-2k)}$$

$$\text{..... equation (8)}$$

RSS_R = residual sum of square restricted

RSS_{UR} = residual sum of square unrestricted

N= sample size

K= number of parameters

U = error term

t = years under review

Where, X_1 and X_2 are capital and recurrent expenditure respectively.

3.5 Apriori Expectation

The a priori expectation of the algebraic signs of the parameter to be estimated as stated above is $\beta_0 > 0$. β_1 (coefficient of capital expenditure) and β_2 (coefficient of recurrent expenditure) are expected to be positive. This means that the expenditure both capital and recurrent is expected to contribute to the growth of the economy.

4. Results and Discussion

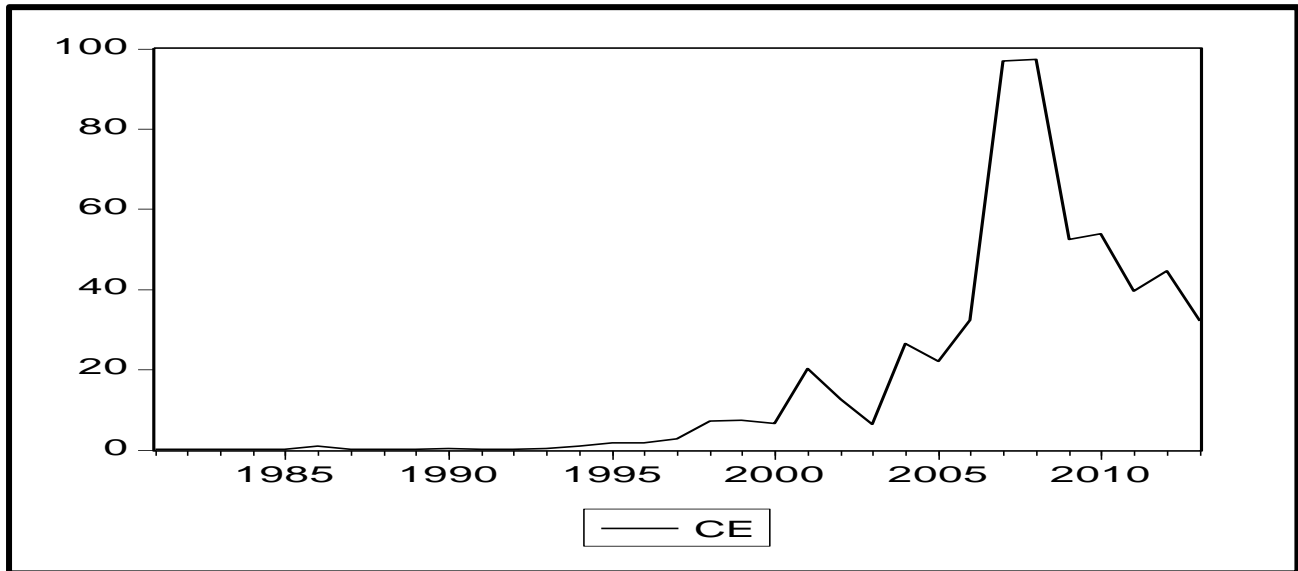
4.1 Descriptive Statistics

Descriptive statistics involves the use of graph to show the trend of all the variables used in research. It is used to achieve the first objective of this project which is to describe the trend in governmental allocation to health over the years under review (1981-2013).

4.1.1 Capital Expenditure

Figure 1 shows the trend of capital expenditure over the years, the Y-axis shows the amount dedicated to the health sector for capital expense while the X-axis shows the various years and it shows that capital expenditure is constant from 1981 to 1996, there is a slight increase from 1997 and it continues to rise but there is a large increase in 2007 and then it declines in 2011 to rise slightly in 2013.

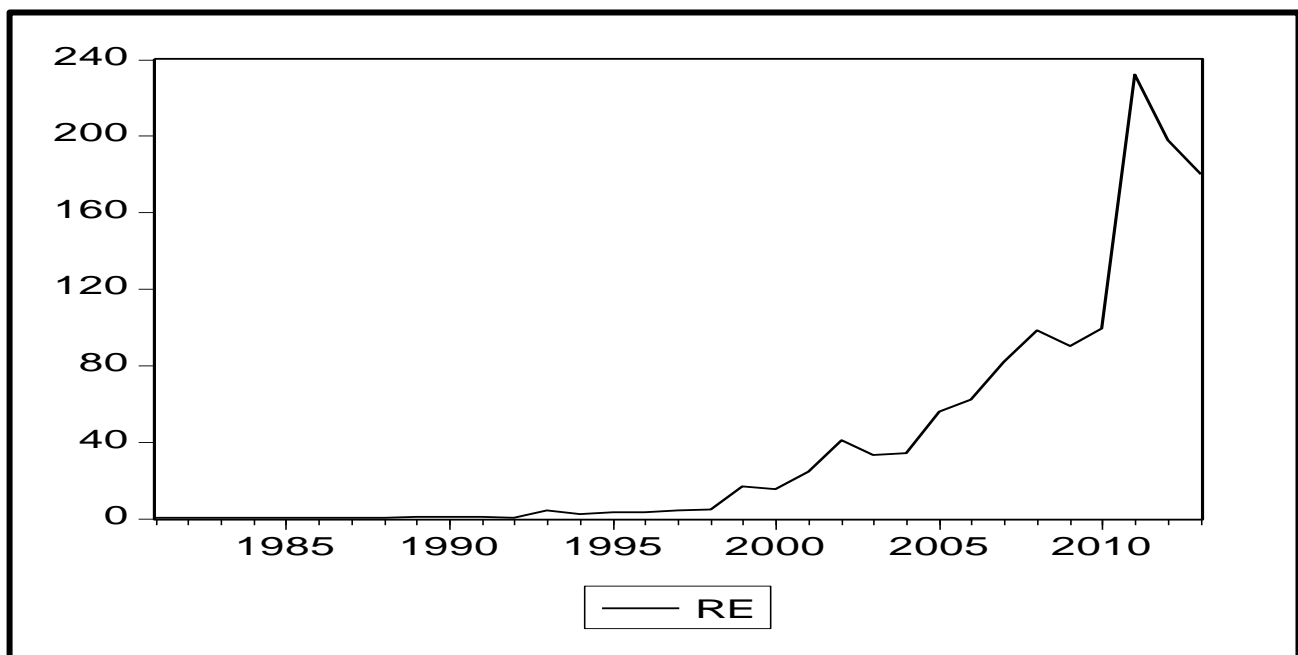
Figure 1: Trend of Capital Expenditure between 1981 and 2013



4.1.2 Recurrent Expenditure

In figure 2, the trend of the recurrent expenditure is explained. It shows that the recurrent expenditure is constant from 1981 through to 1992, the increase in function of funds allocated for this purpose is erratic but there is a sharp increase in 2007 and another of such increase in 2010 then it drops in 2011 till 2013.

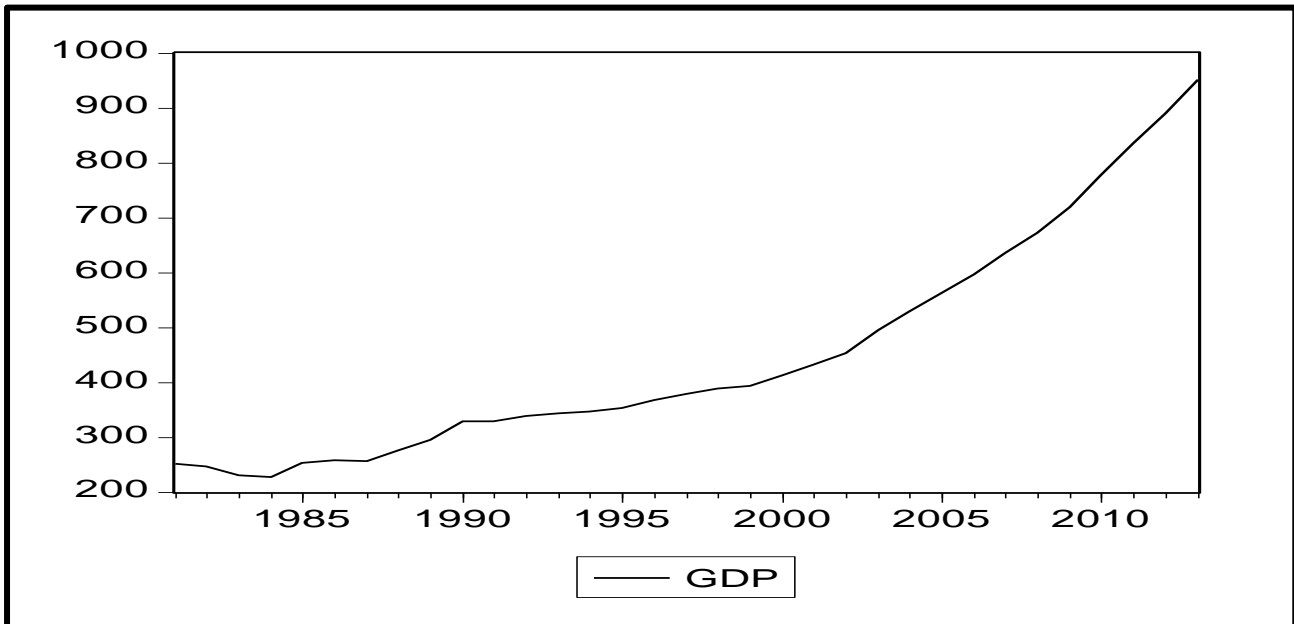
Figure 2: Trend of Recurrent Expenditure between 1981 and 2013.



Gross Domestic Product (GDP)

Figure 3 shows the trend of growth in GDP over the years. GDP is relatively stable between 1981 and 1995 and between 1996 and 2001, there was a slight increase in the national income but it increased from 2002 and continued till 2013.

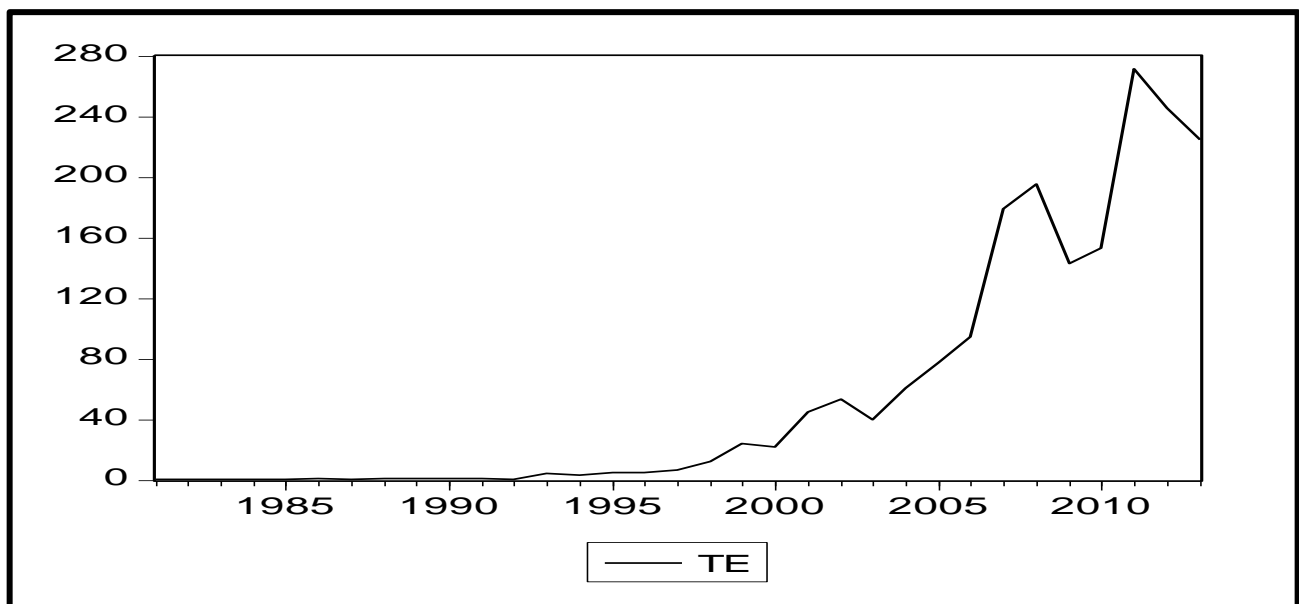
Figure 3: Trend of Gross Domestic Product between 1981 and 2013.



4.1.3 Total Expenditure

In the figure below, the X- axis represents year while the Y- axis represents total health expenditure in billion total health expenditure is constant between 1981 and 1996, it started to rise in 1997 from then on it increased in a jerk-like manner and then rose in 2005 and continued to rise between 2006 and 2007. It fell in 2009, rose again in 2010 but fell in 2011 to 2013.

Figure 4: Trend of Total Expenditure between 1981 and 2013.



4.2 Results of Augmented Dickey- Fuller Unit Root Test (ADF)

The result of the ADF test is shown below. The variables under consideration are total health expenditure, recurrent and capital health expenditures respectively and GDP.

Table 1: Result of the Unit Root Test of Macroeconomic Variables

Variables	ADF test statistics	1%	5%	10%	Test for unit root
GDP	-5.990050	-3.6752	-2.9655	-2.6220	2 nd difference
Total expenditure	-6.808065	-3.661	-2.9637	-2.6200	1 st difference
Capital expenditure	-5.099320	-3.6661	-2.9627	-2.6210	1 st difference
Recurrent expenditure	-5.239324	-3.5661	-2.9727	-2.6230	1 st difference

Source: Author's computation 2015

Augmented Dickey Fuller (ADF) was used here instead of dickey fuller (DF) because ADF is more sophisticated in testing for stationarity of variables. Augmented dickey fuller was used to determine the time series characteristics of the variable used in the regression model. The results of the unit root test showed that total expenditure, capital expenditure and recurrent expenditure were stationary at 1st difference while GDP was stationary after the 2nd difference.

4.3 Regression Analysis

4.3.1 Composite Model

Table 2: Result of Exponential Regression Analysis between GDP and Total Expenditure on Health

Dependent Variable: LOG(GDP)				
Method: Least Squares				
Date: 04/29/15 Time: 13:55				
Sample: 1981 2013				
Included observations: 33				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.755676	0.038856	148.1268	0.0000
TE	0.004603	0.000392	11.74713	0.0000
R-squared	0.816563	Mean dependent var		6.016205
Adjusted R squared	0.810645	S.D.dependent var		0.421194
S.E.of regression	0.183282	Akaike info criterion		-0.496887
Sum squared resid	1.041364	Schwarz criterion		-0.406189
Log likelihood	10.19863	F-statistic		137.9950
Durbin-Watson stat	0.540602	Prob(F-statistic)		0.000000

Significance of the Variables: The regression analysis shows that there is a positive relationship between GDP and total expenditure and the variable is significant at 1 percent probability level. This means a unit increase in health expenditure will increase GDP by 0.0046%. However, the t-statistics shows that the total expenditure is significant at 1% probability level.

R-Square: The R-square value of 0.816563 means the 81.66 percent of the total variation in GDP is explained by the independent variables.

Durbin Watson: The Durbin Watson result of 0.540602 shows a positive autocorrelation between variables.

F-statistics: The F-value calculated is 137.9950 with a probability of 0.0000. This shows that the model is statistically significant at 1% level. This means the explanatory variables simultaneously explained the variation in the dependent variable. The model has a good fit

4.3.2 Disaggregated Model

For the disaggregated model; the linear regression analysis shows the relationship between dependent and independent variables (RE and CE). It is used to determine the effect of the Federal government’s expenditure on healthcare financing (i.e both RE and CE) on the economic growth of Nigeria.

Table 3: Results of Exponential Regression of Disaggregated Analysis.

Table 3: Results of Exponential Regression of Disaggregated Analysis.				
Dependent Variable: LOG(GDP)				
Method: Least Squares				
Date: 04/16/15 Time: 23:09				
Sample: 1981 2013				
Included observations: 33				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.753646	0.039935	144.0752	0.0000
RE	0.004491	0.000721	6.231045	0.0000
CE	0.005099	0.001683	3.030270	0.0050
R-squared	0.815653	Mean dependent var		6.016205
Adjust R squared	0.803363	S.D. dependent var		0.421194
S.E. of regression	0.186773	Akaike info criterion		-0.431334
Sum squared resid	1.046529	Schwarz criterion		-0.295288
Log likelihood	10.11701	F-statistic		66.36826
DurbinWatson	0.572490	Prob(F-statistic)		0.000000

Significance of the Variables: The regression result shows that there is a positive relationship between GDP and recurrent expenditure and the variable is significant at 1% probability level. Similarly, the result shows a positive relationship between GDP and capital expenditure and also significant at 1% level of probability. However, the result of the coefficient shows that a unit increase in recurrent expenditure would lead to 0.04% increase in GDP. Also a unit increase in capital expenditure would lead to 0.005% increase in GDP.

Coefficient of Determination: The R-Square value of 0.815653 means the 81.565 percent of the total variation in GDP is explained by the independent variables (Recurrent and Capital expenditure).

Durbin Watson: The Durbin Watson result of 0.572490 shows a positive autocorrelation between variables.

F-statistics: The F-value calculated is 66.36826 with a probability of 0.0000. This shows that the model is statistically significant at 1% level. This means the explanatory variables simultaneously explained the variation in the dependent variable and the model has a good fit.

4.4 Granger Causality

The granger causality test statistics is used to estimate the causal relationship between GDP and total government expenditure on healthcare.

The Composite Model	
Pairwise Granger Causality Tests	
Date: 03/25/15 Time: 07:34	
Sample: 1981 2013	
Lags: 2	

Table 4: Causality Result Between GDP and Total Health Expenditure.			
Null Hypothesis:	F-Statistic	Probability	Decision
TE does not Granger Cause GDP	0.60527	0.55344	Accept H ₀
GDP does not Granger Cause TE	7.82274	0.00219	Reject H ₀

4.4.1 Results of the Causality Test

Table 4 shows the result of causality test between GDP and total health expenditure, the result shows a uni-directional causality (one-way causation) between gross domestic product (GDP) and total expenditure on health (TE). The implication of this result underpins the role of GDP in enhancing or catapulting total healthcare expenditure in Nigeria.

Disaggregated Model

Result of the Granger Causality Test between GDP and Healthcare Financing

Results of table 5 shows a uni-directional causation from GDP to RE, which shows that RE is not a cause of growth, rather, it is growth in GDP that causes increases in RE. This result is significant at 1% probability level. However, there is no causation between CE and GDP, they are independent of each other.

Table 5: Causality Result between GDP and Health Care Financing Variables.			
Null Hypothesis:	F-Statistic	Probability	Decision
RE does not Granger Cause GDP	0.08504	0.91873	Accept H ₀
GDP does not Granger Cause RE	6.70834	0.00448	Reject H ₀
CE does not Granger Cause GDP	0.81094	0.45924	Accept H ₀
GDP does not Granger Cause CE	1.85829	0.17606	Accept H ₀

4.5 Stability Test for the Composite Model

The result in the table 6 below shows the composite model of the federal government budgetary allocation to the health sector. The result of probability level of 1% ($P < 0.01$) reveals that there is a significant change in budgetary allocation of the government to the health sector. This result might not be unconnected to the introduction of the national health insurance scheme.

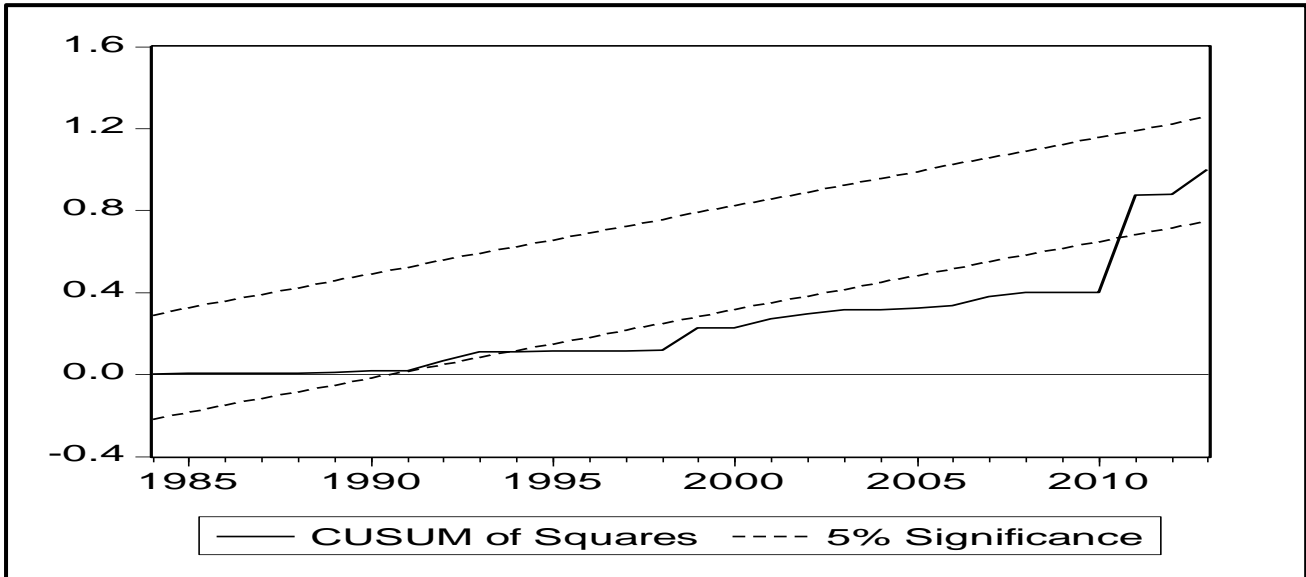
Table 6: Result of the Stability Test for the Composite Model Chow Breakpoint Test: 1999			
F-statistic	8.599851	Probability	0.001168
Log likelihood ratio	15.36736	Probability	0.000460

Cusum of Squares Showing Stability Test

The CUSUM Square test was however used to test for structural change or interaction among variables. Thus, it is used here to determine if a change in the economy's output occurred as a result of a change in the budgetary allocation from the federal government to the health sector.

Meanwhile, figure 5 below shows the Cusum of squares to show the stability of the data within the period, the graph tells us the exact moment the change in budgetary allocation occurred. The graph reveals the movement of the cusum of squares line above the level of significance. It thus shows that there is a significant change in the allocation of funds to the health sector after 1990, though, the establishment of the National Health Insurance Scheme was in 1999.

Figure 5: Cusum of Squares Showing Stability Test.



5. Summary of Findings

The study examined the “Impact of federal government healthcare financing on economic growth of Nigeria”. Study has been able to find out that:

- The trend of capital health expenditure (CE), recurrent health expenditure (RE), total health expenditure (TE) and gross domestic product (GDP) had been fluctuating during the period under review (1981-2013).
- The result of the unit root suggests that the variables in the model were stationary at first and second difference.
- The results of the regression show that 82% of the total variations in the dependent variable were explained by the explanatory variables. The results further showed GDP and healthcare expenditure variables (TE, RE, CE) were positive.
- The result of the Chow breakpoint test shows stability in the data, the data was significantly different after 1990.

5.1 Conclusion

The study investigates the impact of federal government healthcare financing on economic growth of Nigeria. As stated in economic theory, the *a priori* expectation states that government expenditure on health would increase economic growth. The study concluded that there exists significant relationship between the economic growth (GDP), and health expenditure; capital, recurrent and total health expenditures during the period of study (1981 and 2013).

This therefore implies that capital health expenditure, recurrent health expenditure and total health expenditure are a part of significant variables that contributed to economic growth of Nigeria. Similarly, the study concluded that there is a uni-directional relationship between health expenditure and economic growth (proxy by GDP) of Nigeria.

5.2 Recommendations

Based on findings of the study, the following are therefore recommended with a view to enhancing healthcare financing in Nigeria:

- Emphasis should be placed on the implementation of the healthcare financing through National Health Insurance Scheme across all tiers of the government especially in the local government areas of the state. This is likely to improve the productivity, overall healthcare delivery.

- In order to achieve the goals of the vision 2020, the Nigerian government should further invest in healthcare system with a view to reducing capital flight through medical expenses outside the country which in turn has a negative effect on the economy of Nigeria.
- The activities of various health agencies and stakeholders should be well defined to avoid wastage of resources and funds, and the government should seek for more involvement of foreign donors in the health care programmes of the country.

References

- [1] Abu, N. and Abdullahi U. (2010). "Government Expenditure and Economic Growth in Nigeria, 1970 – 2008. A Disaggregated Analysis. Business and Economics Journal. Vol. 4.
- [2] Adolf Wagner (1883). "Three Extract on Public Finance", Translated and reprinted in R,A Musgrave and A.T peacock (eds), Classics in the Theory of Public Finance, London Macmillan 1958.
- [3] Aranda P. (2010). "The Determinants of Health and the Differences in Health Care Expenditures Among countries". Journal of Health Economics. Vol 15.
- [4] Ataguba, J.E. and Akazilli J. (2010). "Health care financing in South Africa: Moving towards Universal Coverage. Journal of CME. Vol. 2 (12).
- [5] Available: http://neumann.hec.ca/neudc2004/fp/grima?rd_frangue_govt_27.pdf.
- [6] Bakare A.S, and Olubokun S. (2011). "Health Expenditure and Economic Growth in Nigeria: An Empirical Study". J. Emerg. Trend Econ. Management Sci. Vol. 2, No 2.
- [7] Baldacci, E.B (2004). "The Impact of Poor Health on Total Factor Productivity". The Journal Development Studies 42(6) 918 – 938.
- [8] Berger M.C and Messer J. (2002). "Public Financing of Health Expenditures, Insurance and Health Outcomes. APPL. Ecn. Vol. 34, No 2.
- [9] Bloom, D., Canning E., (2013): "The Health and Poverty of Nations from Theory to Practice". Journal of Economic Growth. Vol.1, No. 3, pp 363 – 389.
- [10] Bloom, David, Canning, David and Sevilla, Jaypee (2001). "The Effect of Health on Economic Growth: Theory and Evidence". NBER Working Paper No: 858.
- [11] Blooms, D.E and Canning D., and J. Sevilla (2004) "The Effect of Health on Economic Growth: A production function Approach". World Development Vol. 32, No. 1, pp. 1 – 13.
- [12] Carrin, G. D. Evans, and J. Xu (2007). "Designing Health Financing Policy towards Universal Coverage". Bulletin of World Health Organisation. Vol 85 (9).
- [13] Dauda, R.O (2001). "Investment in Education and Economic Growth in Nigeria. An Empirical Evidence. International Research Journal of Finance and Economics. Vol. 55. pp. 158 – 169.
- [14] Eneji, M.A, Juliana D.V and Onabe, B.J (2013). "Healthcare Expenditure, Health Status and National Productivity in Nigeria (1999 – 2012)". Journal of Economics and International Finance. Vol. 5(7). pp. 258 – 272.
- [15] Essien, A.V. (2010). Vision 2020: The Health Sector in Nigeria's Economic Growth; (1975 – 2008). Department of Economics, University of Uyo, Uyo.
- [16] Finlay, J. (2007). "The Role of Health in Economic Development." Program on the Global Demography of Aging. PGDA Working Paper No. 21.
- [17] Grimard F., Harling G. (2004) "The Impact of Tuberculosis on Economic Growth. Department of Economics, McGill University.
- [18] Keynes, John Maynard (2008). The General Theory of Employment, Interest and Money. Chapter 19: IBN Publishing. ISSN 9650060251.
- [19] Lusting, Nora (2006). "Investing in Health for Economic Development: The case of Mexico" UNU-WIDER Research Paper. No. 2006/30.
- [20] Musgrave, R.A (1959). The Theory of Public Finance: A study in Public Economy. New York. McGraw - Hill.

- [21] Nwaobi, G.C. (2004). "Modelling the Health Sector: Nigeria. Anambra State Nigeria. West Africa. <http://mgprople.cos.com/gcnwaobi>. P.O. Box 2560, NNewi (43510).
- [22] Odior, E.S (2011) "Government Expenditure on Health, Economic Growth and Long waves in a CGE Microsimulation Analysis: The case of Nigeria: European Journal of Economic, Finance and Administrative Sciences, Vol.31, No.1. pp 99-114.
- [23] Ogunbekun, I. (1991). Which Direction for Health Care in Nigeria. Health Policy and Planning. 6(3), pp.254 – 261.
- [24] Ogunbipe, M. Adeniyi and Lawal, N. Abiodun (2011). "Health Expenditure and Nigerian Economic Growth". Tai Solarin University of Education. European Journal of Economics, Finance and Administrative Sciences. No. 30. Pp 3.
- [25] Olorunfemi, T. Oladipo O.F, Awoleye O.M and Ajilogba A. (2008)." Deployment of M-Commerce in Healthcare in Nigeria. Trends, Techniques and Tools". Academic Journals.
- [26] Oni, L. Babatunde (2014). "Analysis of Growth Impact of Health Expenditure in Nigeria". Babcock University, Ilesan-Remo, Nigeria. IOSR Journal of Economics and Finance. Volume 3(1), pp. 77 – 84.
- [27] Orubuloye, I.D and Oni, J.B (1996). "Health Transition Research in Nigeria in the Era of the Structural Adjustment Programme". Health Transition Review (Supplement), Vol. 6. PP. 301 – 324.
- [28] Owolabi S.A and Okwu A.T (2010) "A Quantitative Analysis of the Role of Human Resource Development in Economic Growth in Nigeria" European Journal of Economics, Finance and Administrative Sciences. ISSN 1450 – 2275 Issue 27.
- [29] Rao, R.R., Jani, R. and Sanjivee, P. (2008) "Health, quality of life and GDP: An ASEAN experience" Asian Social Science Vol. 4, No. 4 pp. 70 -76.
- [30] Riman H.B, Bassey J.U, Edu B.E (2010). "Healthcare Expenditure in Nigeria; Does the level of Government Spending Really Matter? Available at SSRN:<http://ssrn.com/abstract=1540279>.
- [31] Riman, H.B and Akpan E.S (2012). "Health care financing and Health outcomes in Nigeria: A state level study using Multivariate Analysis. University of Calabar, Calabar. International Journal of Humanities and Social Science.Vol. 2, No 15.
- [32] Scheffler, M. Richard (2004). "Health Expenditure and Economic Growth: An International Perspective" Globalization Research Centre, University of South Florida, Tampa, Florida. Occasional Paper on Globalization Vol. 1, No 10. pp77.
- [33] Solow, R.M. (1956). "A contribution to the theory of Economic Growth: Quarterly Journal of Economics, Vol 70. No. 1. PP. 65 – 91.
- [34] Soyibo, A. (2004). "National Health Accounts of Nigeria. 1998 – 2002. Final Report, 2005 submitted to the World Health Organisation.
- [35] Soyibo, A., Olaniyan A.O. and Lawanson A. (2009). A situation Analysis of the Nigerian Health Sector: Report submitted to Management Education Research Consortium, Washington DC.
- [36] World Health Report [WHO] (2000). Health System: Improving Performance. Geneva, World Health Organisation.
- [37] Wikipedia website. <http://www.wikipedia.com/economic> growth, healthcare financing, gross domestic product definition. (January, 2015).
- [38] World Bank (2005). World Health Development Indicators. Washington DC. World Bank.