Health and Education Expenditures in Relation to The Nigerian Economic Growth

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ABSTRACT

The aim of this thesis is to empirically examine the impact of government education expenditure and health expenditure on the GDP per capita of the Federal Republic of Nigeria post the 2016 recession era. The main source of revenue for the federal Republic of Nigerian government is from the oil sector. Over the past few years, there has been an increase in the oil prices and as a result, this has boosted the government spending. In this study, investigation is being conducted on whether the increase in government spending on education and health have had an effect or significant impact in the GDP per capita or not post the recession era that hit the federal republic of Nigeria in 2016 by using data from 1981-2018. This study uses a bivariate econometric model to examine the relationship between socio-economic infrastructure spendings; government education and health expenditures, and the GDP per capita.

Keywords: Bivariate model, Government expenditure, Education, Health, GDP per capita

ÖZ

Bu tezin amacı, 2016 durgunluk dönemini sonrasında Federal Nijerya Cumhuriyeti'nde devlet eğitim ve sağlık harcamalarının, GSYH'ye olan etkilerini ampirik olarak incelemektir. Federal Nijerya Cumhuriyeti hükümeti için ana gelir kaynağı petrol sektörüdür.Son birkaç yılda, petrol fiyatlarında artış olmuştur ve bunun sonucu olarak, devlet harcamaları artmıştır. Bu çalışma, 1981-2018 tarihli verilerini kullanarak, 2016 yılında Nijerya Federal Cumhuriyetinde ekonomik durgunluk dönemindeki eğitim ve sağlık harcamalarındaki artışın, kişi başına GSYH ilişkili olup olmadığı ve ilişkili ise ne oranda etkili olduğunu araştırmayı amaçlamaktadır. Araştırmada, sosyo-ekonomik alytapı haracamaları; eğitim ve sağlık giderleri ve kişi başına GSYH arasındaki ilişkileri incelemek için iki değişkenli econometrik model kullanılmıştır.

Anahtar Kelimeler: Iki değişkenli model, Devlet giderleri, Eğitim, Sağlık, GSYH kişi başı.

DEDICATION

This work is dedicated to the Family of Alhaji Alkali Abdul-Rahman Bello

ACKNOWLEDGEMENT

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LIST OF ABBREVIATIONS

CGE	Computable General Equilibrium
ECM	Error Correction Model
GDP	Gross Domestic Product
GDPpc	Gross Domestic product per capita
GEE	Government Expenditure on Education
GEH	Government Expenditure on Health
OLS	Ordinary Least Squares
OECD	Organization for Economic Co-operation and Development
UBE	Universal Basic Education
UPE	Universal Primary Education
VECM	Vector Error Correction Model
WDI	World Bank Development Indicators

Chapter 1

INTRODUCTION

1.1 Content of the Study

Over time, the formation of the physical and human capital are influenced by public expenditure. The government all over the world as we know it are responsible for providing certain goods or services and amongst these are two primary provisions the government provides and they are: the provision of security for its citizens as well as the accessibility of some goods or services for the citizens (Abdullahi, 2010). When the government wants to provide protection, the government creates rules and/or laws which help in enforcing property rights etc., which aids in the prevention or minimization of risk of criminal activities and outward belligerence. Beneath the provision of public goods are health, education, energy, transportation etc. The classical economic theory does not involve the ideal size of the government, however, it says that in order to ascertain whether the allocation of resources promotes or hinders growth, cost and benefits should be analyzed, (Ojong ,2016). When the public expenditure falls in line with future economic expenditure, it forms the basis of economic policy for a prosperous society. For instance, by investing on human capital; education and health, labor productivity increases thereby increasing growth of national output. Likewise, the growth of any country's economy can be promoted by reducing the cost of making goods and services and increasing chances of investment for the private sector through investing in infrastructures such as good road networks, communication, and energy. (Cooray, 2009) came to the conclusion

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that by expanding the government education expenditure, the economy's development is impacted positively.

In the case of the federal republic of Nigeria, the government spends heavily on physical energy; PWH (power, works and housing), transportation, defense, water resources and so on. However, socio-economic infrastructure; education and health, receive the lowest allocations of government expenditures (Punch newspaper, 14 December. 2016). Changing the composition of oil revenues expenditures to a more balanced distribution between physical and socio-economic infrastructure will contribute to the economic growth of the country.

Richard Bundell (1999) who analyzed if and how human capital investment effect the economic growth of a country argued that the rate at which human capital and innovation are amassed governs the growth rate of production. In the United States, there was about 33% increase in productivity over the course of 50 years due to the increase in literacy levels of the work force. According to Henry Jenkins (1995), between the years of 1971-1992, the annual output in the United Kingdom rose from 0.42 to 0.63% due to about 1% increase in the share of high skilled workers. Afzal and Abbas's (2010) study shows that human capital investment has a positive impact in the economic growth of Pakistan's economy both in the short and long run..

By means of a 31 years' time series data between 1977-2007, Risikat Dauda (2010) verified how the federal republic of Nigeria's economic growth was affected by the investments made on education. The result of Dauda's study revealed that economic growth were unquestionably affected by spending on education. Using the Spearman Rank correlation coefficient approach, Bakare (2012) also analyzed the connection amongst the educational plea and economic growth in the Federal Republic of Nigeria where a positive correlation was observed in his study.

Therefore, suggesting that economy would grow as a result of admissions in higher schools. According to the results obtained from Bakare's study, it was established that through education, illiteracy, abject dearth of finances and starvation can be combated and economic growth stimulated. Aigbedion (2017) studied the economic growth of Nigeria and the effect of the government spending on public education. The study used time series data and empirically investigated the relationship. The result of his study also concluded that education and economic growth of the country are linked with one another.

A sample of OECD countries' data was taken from 1970-1992 and the data was analyzed by Heshmati (2001) in order to investigate the bond between health expenditure and economic growth. It was discovered that there is a positive link between health expenditure and economic growth.

To reach the conclusion that human capital do have an influence on the economic growth was also shown by Bloom et al. (2004). Bloom et al's study showed that human capital expenditure was positively and statistically significant to economic growth. Guisan and Arranz (2003) made an analysis, which included the total health expenditure (public and private) of 24 OECD countries ranging from the years of 1970-1996 using OLS estimator. They evaluated the effect of health expenditure on economic growth. The most prominent conclusion of their investigation was that health expenditure plays a significant role in improving the overall well-being of individuals.

1.2 Aim of the Study

Review of the literature shows that laying excessive emphases on the importance of the public investment on education and health can never be over accentuated. In the quest for a robust economic performance, personal advancement, societal

development and labor market prospects, education and health, which are modules of human capital asset, is of great importance. Moreover, it is a global phenomenon that when governments invest on education and health, it paves a way to economic development. This relationship is backed up by the existing empirical literature. This, however, has brought about the idea to empirically evaluate the impact of increased allocation of government education expenditure (GEE) and government health expenditure (GHE) and if this has altered in anyway the effect it had on the economy post the recession era the Federal Republic of Nigeria faced in 2016. Although similar studies have been carried out, this thesis used more recent data and different estimation method to examine if there has been any significant change in the impact of GHE and GEE on economic growth. Using annual data series ranging from the years of 1981-2018. This study empirically examined the contribution of socio-economic infrastructure investment of the government; investment on public education and health on the GDP per capita of the federal republic of Nigeria.

1.3 Organizational Structure

This entire thesis includes a total of five chapters in which the first is made up of the introduction, which is then followed up by the content of the study, the aim of the study comes immediately after the contents of this study, organizational structure and the conceptual and theoretical review on health, education and economic growth of the federal republic of Nigeria rounds up the entire first chapter of the study. The second chapter however is the literature review. This part contains the theoretical framework and the empirical literature review relating to the health and education expenditures of the federal republic of Nigeria. The third chapter takes account of the economic profile of Nigeria which includes the GDP per capita of the investigated years, the education expenditure and the literacy rates and the health expenditure and

the life expectancy of the country. The fourth chapter comprises of the specification of the data and lastly the research methodology. The final chapter talks about the analysis of data, outcomes and their respective interpretations as well as the presentation and discussion of the findings as well as summary of the findings, conclusion and policy recommendation from the research rounds up the thesis work.

1.4 Conceptual and Theoretical Review on Education, Health and Economic Growth

Economic growth can be said to be an upturn in the quantity of goods and services manufactured per head of the population of a country over a certain period of time which is usually calculated annually. There are so many factors that influence the economic growth among which are the availability of labor, physical and financial capital, natural resources, technological improvements, inflation rate, human capital, innovations, international trade and among others. The availability of human capital, which can be translated into education which when transformed effectively leads to higher literacy levels and technological advancements are highlighted in prominent research works. According to Olaofe (2005), the learning environment is a key reason for the decreasing standards of education in Nigeria. Many communities face situations where students are taught in dilapidated school buildings, with inadequate learning facilities, taught by inexperienced and unqualified teachers, where knowledge is passed without rudimentary teaching and where one textbook has to be shared between 12 students rather than one student per book, unconducive learning environment that has inadequate learning facilities. This scenario in essence completely mocks the idea of having a sound educational system. Therefore, problems that hinder learning has to be resolved in order to stop the steady decline in standards of education.

Adeniyi and Abiodun (2011) made a research to evaluate the impact of an improved spending on health sector and the corresponding impact it will have on the economic growth of the federal republic of Nigeria. They argued that life expectancy at birth and the rate of fertility between the years of 1985 and 2009 had direct and substantial effects on the economic growth if funds are wisely spent in the health sector. Therefore, the type and quality of health services provided must be improved.

Odior (2011) tried to estimate the final results of an increase in the health sector of Nigeria and came to the conclusion that the economic growth of Nigeria can be expanded by the reallocation of government expenditures to the health sector. This shows that the government needs to invest in the country's health sector.

Riman and Akpan (2010) jointly examined the relationship between health and economic growth with the model granger casualty test and VECM where they established a relationship between poverty and health status and also a non-significant relationship between health status and government expenditure in the long-run. They came to the conclusion that in order to elevate the health status of the country, policies should be put in place such that they would also lead to promotion of the literacy levels in adults, reduction of poverty levels and also income disparity. This is because increasing the funds allocated to the health sector with no intention of reducing the poverty levels is not an adequate criteria alone to improve the health status of the country.

Chapter 2

REVIEW OF THE LITERATURE

2.1 Keynesian Theory

Keynesian model was postulated by John M. Keynes in 1936 in an endeavor to elucidate the happenings of the great depression. It is a demand-side theory, which is more fixated on the short run. It believes that in the short run, prices are "sticky" (reluctant to change or resistant to change), and as a consequence advised increased government spending and lower taxes to encourage demand and pull the economy out of depression. This assessment proposes a distinguishing outlook from the classical theory which held that cyclical swings in the economy will be moderate and self-adjusting in the long run because as John Keynes himself puts it, "in the long run, we are all dead". As the Keynesian model describes the short run, it does not really consider the effect of technological advancements, which stems from education as a factor in the economic growth of an economy. Nevertheless, an increase in government spending which might be in form of an investment in the education sector might be useful in pulling an economy out of a slump and making it perform better.

2.2 Human Capital Theory

The above-mentioned principle was upheld by Gary Becker in 1964, with significant contributions from Theodore Schultz. It clarifies that the individual revenues are a direct function of the abilities, knowledge, and skill they hold, stared in terms of their significance or cost to an organization or country. In his prominent

book, Adam Smith built a framework which later lengthened into this theory, with two contending schools of thought - one which differentiates between the developed abilities of people which were recognized as capital and actual people, who weren't viewed as capital and the other which appealed that people themselves were capital. The human capital theory pointed out that a direct relationship exists between the quality of education of a populace and its economic output. Developing human capital using education is mostly correlated with greater opportunity for better jobs and better life, which highlights the Kuznets inverse "U" curve hypothesis (Gylfason and Zoega, 2003). Furthermore, as the income of societal citizen's increase, it will lead to an increase in the tax revenue of the government; and this revenue increase of the government will allow for increased funds used to implement socialist projects in order alleviate the poor people of the society. This was Stephen Oluwole Awokoya's approach to education since he became the minister for education in 1952. It has also been displayed in the educational policies that have been adopted by various prominent Nigerian leaders. The modern version of this theory explains that all human action are rational and utility-maximizing, operating within the freely competitive markets and views other forms of behavior as distortions of the model. It also emphasizes the significance of training as crucial in partaking in this modern globalized economy. One of the major qualms with this theory is that human capital is virtually impossible to quantify numerically, so it is difficult to empirically quantify how much it impacts the total output of an economy. Moreover, it stresses the importance of internationalism as a method of increasing the quality of education. An OECD reports (1997, p.11) states that "internationalism should be seen as a preparation for the twenty-first-century capitalism". The importance of both education and internationalism is not lost on Nigerians.

2.3 Empirical Literature Review

This part of the thesis deals with the review of studies on the connection between health and education public and private expenditure and its effects on the economic growth. Aregbeyen and Bashir (2015) looked at the relationship between government expenditures from the oil revenue and the economic growth between the years of 1980-2012 in Nigeria. They tried to determine the direction of the causality and magnitude of the impacts of the variables. Hence, coming to the conclusion that in order to have a sustainable growth there should be a heavy investment in the infrastructural projects of the country.

Oyelade (2018) conduct a research to check and see if there is a correlation among government expenditure on infrastructure and economic growth in the Federal Republic of Nigeria using time series analysis from the years of 1980 to 2014. The findings of the research show that infrastructural expenditure led to 44% growth in the country.

Bhargava et al. (2001) also conducted a study which used data between the years of 1965 to 1990, in 92 countries investigated how health expenditure affects the growth rates of GDP per capita for those countries. It was ascertained that economic growth in low-income countries has a positive relationship with health expenditure.

In another study, Gyimah and Wilson (2004), tested to see if investment in the health sector of sub Saharan African countries as well as OECD countries would foster the growth of the economy. They found a significant increase in the economic growth both in the long run and the short run. Aghion et al.'s (2010) cross-country analysis showed that there is a significant relationship between life expectancy and GDP per capita growth rate between the periods of 1960-2000.

According to the result of Barro's (1996) study about one hundred countries over a thirty year period (1960 and 1990), economic growth was found to be positively affected by education and health expenditures. According to Jamison et al. (2003), about 11% of growth is as a result of better health. The outcome of their analysis affirmed that economic growth could be influenced by investing in education, health and physical capital. Between the years of 1929-1997, Aka and Dumond (2008) used Johansen cointegration and ECM methods to study the affiliation concerning the economic growth in the United States. Health and education expenditures were the independent variables tested and it was found to be allied to economic growth. Asghar et al. (2012) tested the Pakistan economy between the years of 1972-2008 and it was established that there is a long run as well as a short run relationship amongst economic growth and education expenditure. Dauda (2010) in her examination of the Nigerian investment in the education as an agent of economic growth using a time series data of 1977-2007 asserted that there is a long run relationship between the economic growth and education investment. Dahal (2016) used evidence from the annual data series of 1995-2013 to enlighten us that the economy of Nepal has a long run relationship between education and the GDP per capita. Mujidat (2016) explored the possibilities of investment in education having a long run relationship with per capita income in Nigeria between the years 1970-2014. She also concluded that the relationship between the variables actually do exist and hence a further investment in the education sector should be employed. Iyanu (2018) also studied the health expenditure of the Nigerian government and arrived at the verdict that there is a direct link between the health expenditure and the gross domestic output of the country over the years. Idowu (2014) studied the impact of health on the economic growth of Nigeria from 1995-2015 and concluded that a 1%

increase in health expenditure increases the GDP per capita by 0.0316%. Ese (2014) examined the public education and economic growth in Nigeria which included data from 1970-2010. She found a corresponding significant relationship between education and economic growth of the country. Zita and Obi (2014) examined the impact of government education expenditure on economic growth. They used data series from 1981-2012. They found a long-run relationship between the variables and also shows that education expenditure positively impacts the economic growth of the country.

Chapter 3

THE NIGERIAN ECONOMIC PROFILE

Overtime, investment decisions made by the federal republic of Nigeria has either yielded an increase in the GDP of the country or has led to a decrease compared to the previous years. This chapter however tries to discuss the reasons for the fluctuations in the GDP and the government expenditures on health and education. This chapter has been spread-out into three parts and the first section of this chapter provides economic background of Nigeria, as well as possible causes of certain trends on its GDP performance with the help of the Nigerian GDP graph, i.e. Graph 1 to ease interpretation. The second part tries to discuss the education system of Nigeria as well as the government expenditures on educational. The graph on the expenditure (Graph 2) is also provided to make it easy for understanding. Evidence of an increase in literacy level of Nigeria was provided to show from 2011-2016 in (Graph 3) as this were the years with the highest input of government expenditures on the educational aspect. The final part talks about the Nigerian health system and its tribulations. A graph (Graph 4) was also provided to show the Nigerian government expenditures on health. The life expectancy graph (Graph 5) is also provided to shed light on the changes of the life expectancy of the country as investments in that sector increased over the years. The (Graph 6 and Graph 7) shows the distribution of the Federal Republic of Nigeria's Budget in some key aspects of the year of 2010 and 2008 respectively.

3.1 Nigerian Economic History

The federal republic of Nigeria has always been involved heavily in the world economy as it is well known as the most populous black nation in the world and also currently has a total population of over 200 million individuals in 2019 taking the number 7 spot on the world population ranking of 2019 (Punch newspaper, 7, March. 2019). Nigeria got amalgamated in 1914 therefore merging the northern and southern part of the country together by the British army (Nigerian Diaspora, 4, May 2003). The southern part of Nigeria however adopted the modern economy and also adopted the western education before the northern part as a result of the coastal region they enjoyed, and so it made it easy for them to interact with the British and other European countries (Nigerian Diaspora, 4,May 2003). Before the discovery of oil, various groups that make up modern day Nigeria were heavily dependent on agriculture (Chinweizu,2006). For example the northern parts of Nigeria were producers and exporters of groundnut among other products and the western part of Nigeria produced cocoa, and as a result agriculture formed a major part of the Nigerian economy. On the 1st of October 1960, Nigeria gained her independence from her colonial rulers (Nigerian diasporal, 4, may 2003). Nigerians were now eager to build a sustaining and progressive economy that encompasses of industrial, services and most importantly the agricultural sector. As a result of this the country took up planning of economic growth and development in the course to increase the material welfare and wellbeing of the citizens (Adebiyi, 2005). From the years of 1962-1968, education was aggressively pushed in other to reduce the rate of illiteracy at all levels and also in order to provide skills and labor force development. Prioritizing agriculture was also designed to accelerate economic growth. The years of 1967 to 1970 were bad for Nigeria as it witnessed the civil war and this affected

the GDP heavily (The Historian, 4 May, 2013). As a result of this, the years of 1970 to 1980's plan was designed primarily to rehabilitate the economy post the civil war era by massively investing in construction of new infrastructural resources. By the late 1960s, oil had become the country's main source of income which boosted the country's GDP (The Historian,4,May,2013). In 1971 the country was already the seventh largest producer of oil in the world and coupled with the dramatic rise in oil prices in 1974, this caused a massive flood of wealth for the country (Romanova, 2007). Nigeria soon reduced the amount of attention it gave to agriculture and hence focused on the oil sector. There has since then been a fluctuation in the economic growth of the country due to various obstacles most especially the political influence in the country as well as the rise and fall of oil prices. Various years from 1960 to 1994 were faced with challenging obstacles for the country and they have meddled with the economic prosperity of the country hence causing the fluctuations in the economic growth of the country (The Historian, 4, May, 2013). During these years (1960-1994) the country faced 9 military coups. The last of them was the coup of 1993 which saw General Sani Abacha come into power. The coup of 1993 dropped the Nigerian GDP from 29 billion dollars in 1992 to 15 billion dollars in 1993 (shown in graph 1). Nigeria has since been democratic as it has not witnessed any coup after the death of General Sani Abacha in 1998. The country maintained its GDP rise gradually but between the years of 2009 to 2014 (shown in Graph 1), the GDP had a high spike due to the rise of oil prices (Adisa, 2014). In 2009 the GDP was 165 billion dollars, it doubled in 2010 going to 369 billion dollars and by 2014 it had gotten to 568 billion dollars. However, due to the fall of oil prices in 2015 from 93 dollars per barrel to 48 dollars per barrel, this affected the economy negatively as the GDP began to fall. Despite the fact that Nigeria is one of the largest economies in

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Sub Saharan Africa; it still heavily relies on oil revenues (Aregbeyen, 2015). The country has since tried to diversify its economy by investing in its agricultural and telecommunications sectors. Unfortunately, these economic modifications and increase in growth have not transcended into noteworthy decrease in poverty levels of the country. Although Nigeria has been blessed with oil, it still struggles with a frustrating lack of proper infrastructure, lack of efficient property registration system and its inability to adequately provide constant electricity to its citizens, an almost crippled judicial system, and lack of reliable mechanism for dispute resolution, a terrifying amount of corruption and an astounding level of insecurity. Due to a number of reasons particularly regulatory constraints and security risks, new investments in the oil and natural gas sectors have been scarce therefore making the production of oil in Nigeria since 2012 contract yearly. However, in 2017, a slight rebound was observed in the country's oil production. During his campaign, President Muhammad Buhari (elected in March 2015) ran an anti-corruption platform, promising to be transparent during his time in the office. He has made headway in reducing corruption by implementing a treasury single account, which allows for better management of resources by the government. The government is currently working on developing stronger partnerships between the public and private sectors for better road networks, agriculture and improved power supply. President Muhammadu Buhari publicized his plans to increase transparency, diversify the economy and improve fiscal management and however, a number of protectionist policies have been made based on the recommendations of the Central Bank of Nigeria's governor (Godwin Emefiele) to avoid further devaluation of the Nigerian Naira. Nigeria entered into recession in the year 2016 partly due to the crash in the price of oil in the international market. However, in the year 2017 its

GDP growth turned positive as price of oil increased and output was stabilized (shown in graph 1). Nigerian government's long term goal is in 2020 to become one of the top 20 economies in the world (Cyprian, 2011). The goal to be one of the top 20 economies in the world is very much achievable especially with the vast amount of wealth it possesses as well as the advantage it has as the power house of the African continent in regards to its size. The goal can be achieved if it focuses on the right aspects. The World Bank states that for an economy to achieve successful development it has to make transition to a new economy based on productivity, innovation and a knowledgeable workforce. Just like every other country that are currently among the top 10 economies in the world, they have also witnessed a lot of obstacles but they have come out of these problems so as Nigeria will if they focus their attention on the investment of socio economic infrastructures.
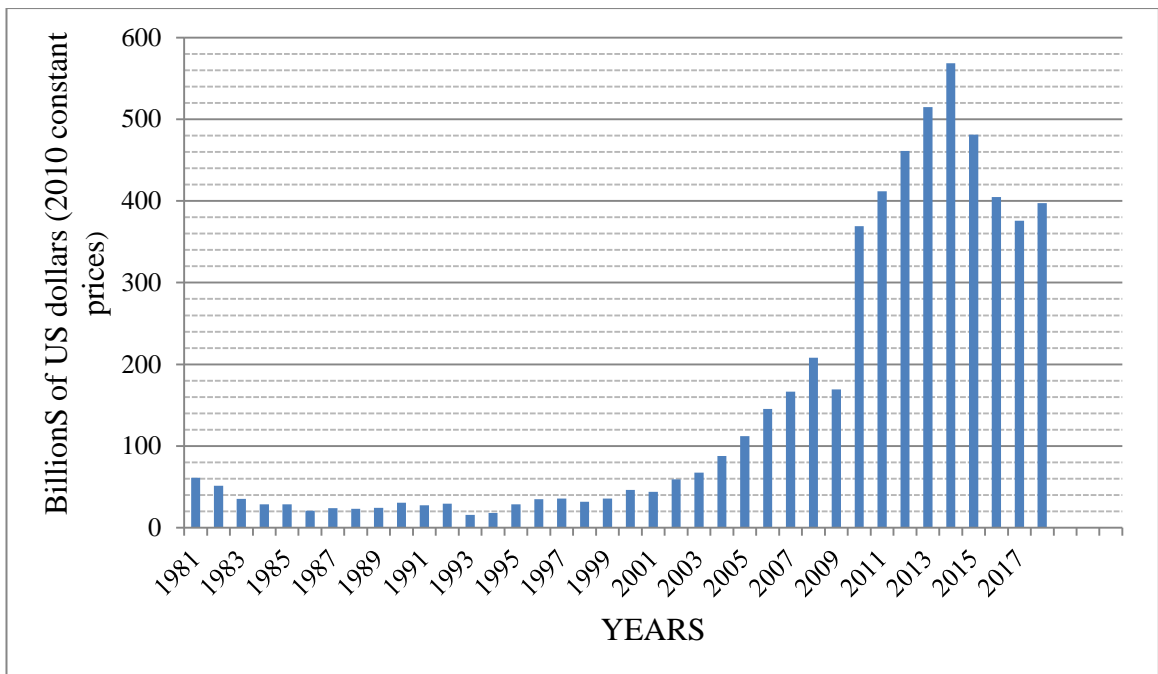

Figure 1: Nigeria's GDP 1981-2018
Source: World Bank, 2018

The above Graph (graph 1) shows the fluctuation of Nigerian GDP from 1981-2018

3.2 Education History

Before Nigeria gained independence from the British, two forms of education was commonplace (Nigerian Diaspora, 4, May 2003). The first was the traditional education which is mainly general knowledge of the norms of the society, character and agricultural knowledge (how to grow and take care of agricultural produce). The second form of education was the Islamic education which was mostly practiced in the northern part of the country and consisted solely on the teachings of the Qur'an. However both forms of education were later overthrown by the western education through Christian missionaries that came to Nigeria in 1842 (The Historian, 4 May, 2013). After the country gained her independence on the 1st of October 1960, the need to restructure the educational system passed down by the colonial power was of great importance (Olaofe, 2005). The need to invest in education cannot be over emphasized. In order to make the transformation a smooth and successful one for the country, different educational bodies were set up to oversee the smooth running of the process. Nigerian national education system went through three big reforms (Olaofe, 2005). The first one was in 1977 were the UPE was introduced in other to educate young children of ages between six and eleven. This was made in order to increase the enrollment rates at the primary level in order to give them the basic education needed towards reducing illiteracy in the country. This programme however made it possible to increase the number of primary school enrollment rate from three million in 1976 to twelve million in 1980. In 1987 there was a low allocation to the education expenditure (shown in graph 2) as fall in oil prices in the previous year made it difficult to allocate enough resources to the government expenditures. There was also a provision of free education throughout this period and this significantly increased the enrollment rates in the country. However this was

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short lived as a result of mismanagement of resources, poor planning, the lack of quality educational facilities as well as embezzlement of public funds by government officials and this ended the programme in 1991(Olaofe, 2005), which then led the country to have its lowest ever education allocation in the budget in 1992 (shown in graph 2). However there was a rebound in 1993 when there was a change in administration (head of state) there by increasing the budgetary allocation of education by then head of state president Ernest Shonekan (shown in graph 2). In 1999, there was another reform by the national policy on Education where a new scheme was introduced. A new structural education policy which consisted of six years of elementary, three years of junior secondary education, 3 years of senior secondary education and 4 years of tertiary (university). In 2004, then President Olusegun Obasanjo introduced the UBE programme which was meant to eradicate illiteracy and increase adult literacy (Olaofe, 2005). The free school fees programme that didn't work earlier was re-introduced and this covered all levels of education. It made it compulsory for children to attend schools and sanctioned parents who didn't abide by this new rule. Political influences had its role to play in the expenditures the educational system faced. After his tenure, the next president Dr. Ebele Goodluck Jonathan (2010-2015) also invested in the education coupled with the increase in oil prices that made it easy for the Nigerian government to spend on expenditures there by showing a great impact from the years of 2011, making those years the highest Nigeria has spent on education (shown in Graph 2). The result of the increase in the education expenditure can be seen in graph 3 where there was a steady increase in the literacy levels between those years (2010- 2015). However the expenditure dropped in 2014 as a result of the fall of GDP caused by low oil prices.
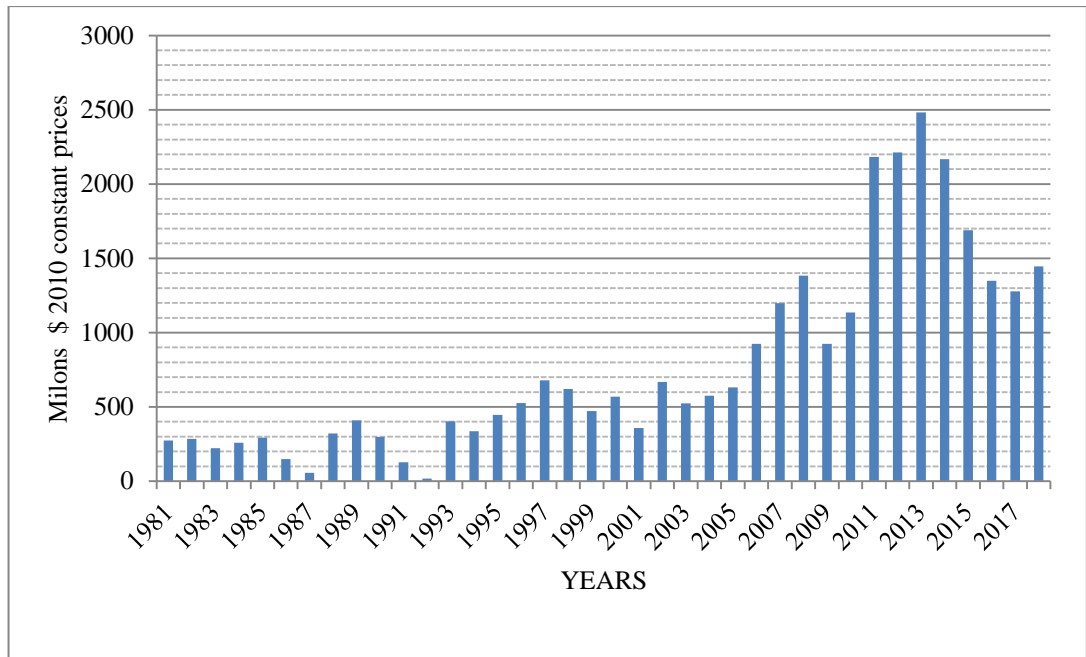
Figure 2: Nigeria's Education Public Expenditure 1981-2018
Source: World Bank, 2018

The above graph (Graph 2) shows the fluctuations of Nigeria's education expenditure
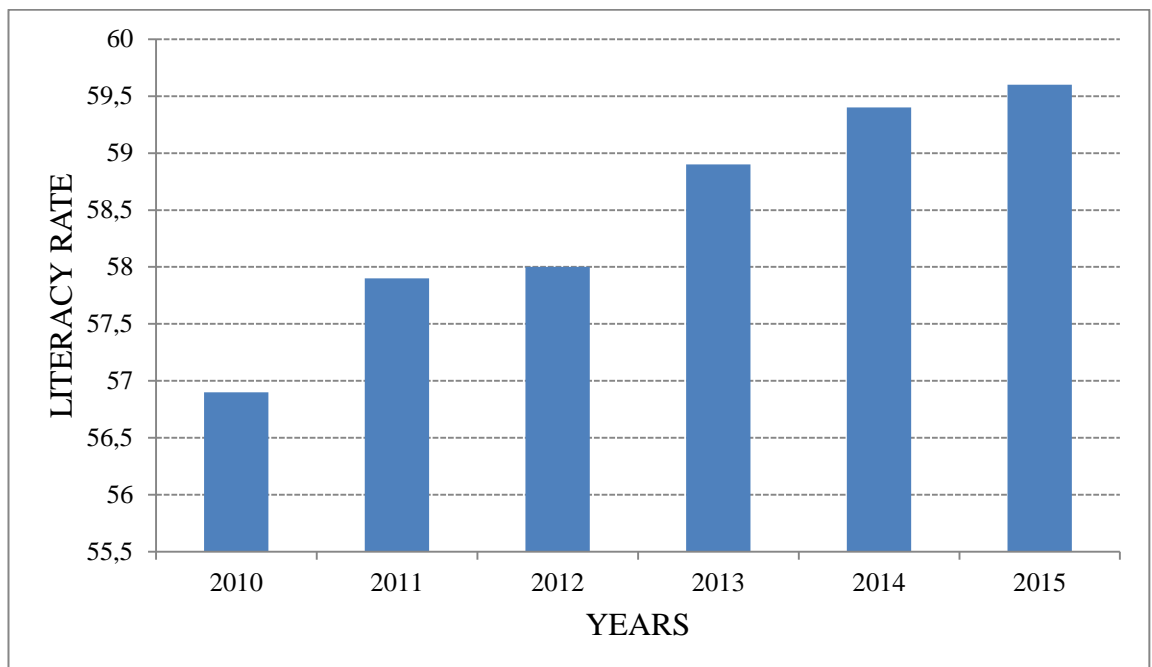
from 1981-2018.

Figure 3: Nigeria's Literacy Rate 2010-2015
Source: World Bank, 2018

The above graph (Graph 3) shows the fluctuations of Nigeria's literacy rate from 2010-2015.

3.3 Health Care Services

Before the arrival of modern day health care services, Nigerians used traditional means to abolish any form of illness (Bakare, 2011). The traditional means ranged from herbalists, divine healers, midwives, bone-settlers and so on. However the first record use of modern medical service in Nigeria was in 1854 during the exploration of Mongo Park which was seriously infested with diseases and illnesses especially malaria. There has been an increase and significant decrease in the expenditure of health care in Nigeria. Nigeria is a country that spends on the health care when the need for an urgent cure is required rather than the spending on the prevention of it (Nwafor, 2016). Looking at the graph of the Nigerian health expenditure (Graph 4), a notable dwindle in the expenditure of health care is in the year 1987 where there was a drastic fall in the oil prices of the previous year which is 1986 where prices fell from 66 dollars per barrel to 34 dollars per barrel there by making the Nigerian government cut down on its expenditures especially on the aspect of health care. This drastically dragged the expenditure on health down as can be seen in Graph 3. Another noteworthy reduce in the health care expenditure is in 1992 where there was not enough funds to allocate budgets to government expenditures due to embezzlement of public funds by government officials which was one of the reasons of the 1993 coup. This change in administration caused a change in the following year by increasing the budgetary allocation in that year. The expenditures on health care kept on increasing over the years due to a constant rise in the GDP of the country and a spike in the 2011 was due to high oil prices and hence availability of funds to spend on other expenditures. There has since then been a dwindle in the

allocated funds of the health expenditure but not noteworthy changes unlike the years of 1998 as well as the year of 1992. The life expectancy of Nigeria can be seen in graph 4 and as it indicates, there has been a consistent increase in the life expectancy of Nigerians moving from 45 years in 1981 to 54 years in the year 2018.
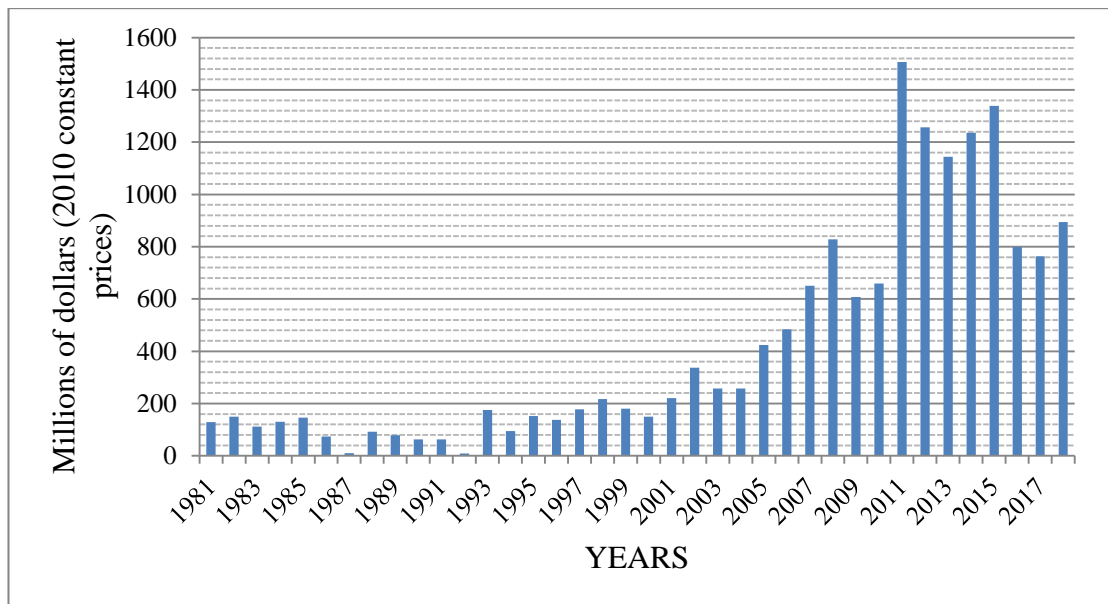
Figure 4: Nigeria's Health Expenditure 1981-2018
Source: World Bank, 2018

The above graph (Graph 4) shows the fluctuations of Nigerian Health Expenditure from 1981-2018.
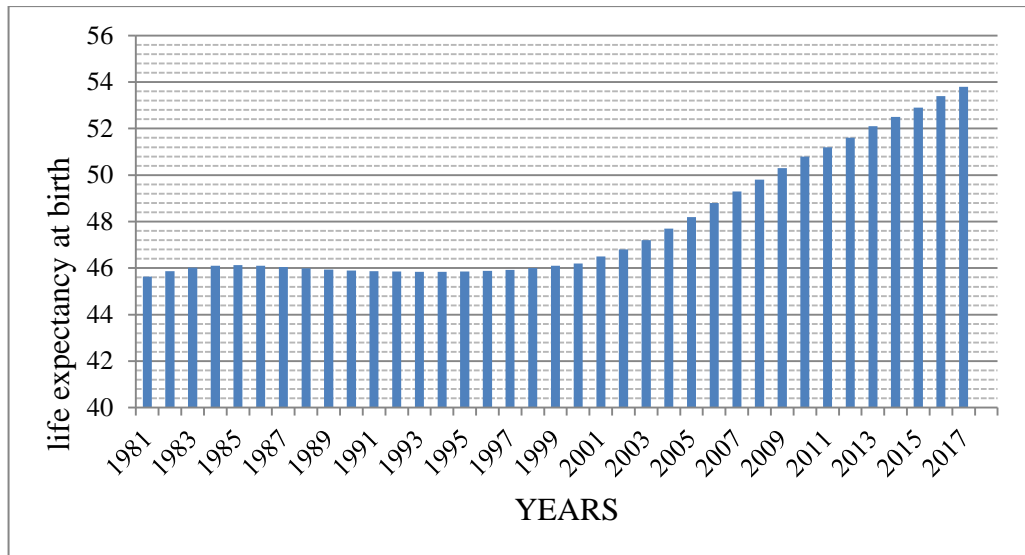
Figure 5: Nigeria's Life Expectancy 1981-2018
Source: World Bank, 2018

The above graph (Graph 5) shows the change of Nigerian life expectancy from 1981-2018.

3.4 The Nigerian Budget

The Graph 6 and Graph 7 shows the allocation in some key areas in the Nigerian Budget of 2010 and 2008 respectively. The years were picked in order to show how the public expenditures allocated the budget in two different years. The Year 2008 showed a lower investment in the education and health sectors while the year of 2010 showed an increase in that year and this was because the new administration made it a priority to improve the education as well as the health .

Allocation of Budget, 2010
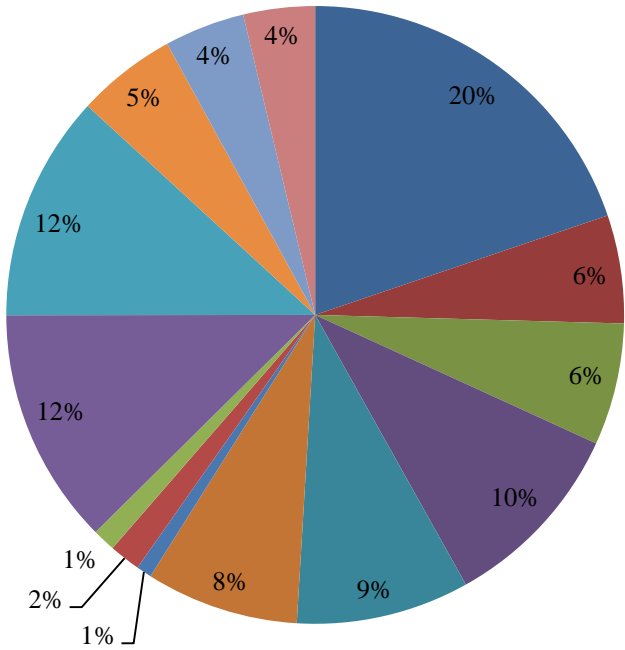
general administration
defense
internal security
education
health
other social and community services
agriculture
Road and construction
transport and communication
other economic services
public debt charges

Figure 6: Nigeria's 2010 Budget
Source: Central Bank of Nigeria, 2018

The above graph (Graph 6) shows how the Nigerian budget for 2010 was being

allocated on some key areas.

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Allocation of Budget, 2008

- ■ general administration
- ■ defense
- ■ internal security
- ■ education
- ■ health
- ■ other social and community services
- ■ agriculture
- ■ Road and construction
- ■ transport and communication
- ■ other economic services

Figure 7: Nigeria's 2008 budget
Source: Central Bank Of Nigeria, 2018

The above graph (Graph 7) shows how the Nigerian budget for 2008 was being

allocated on some key areas.

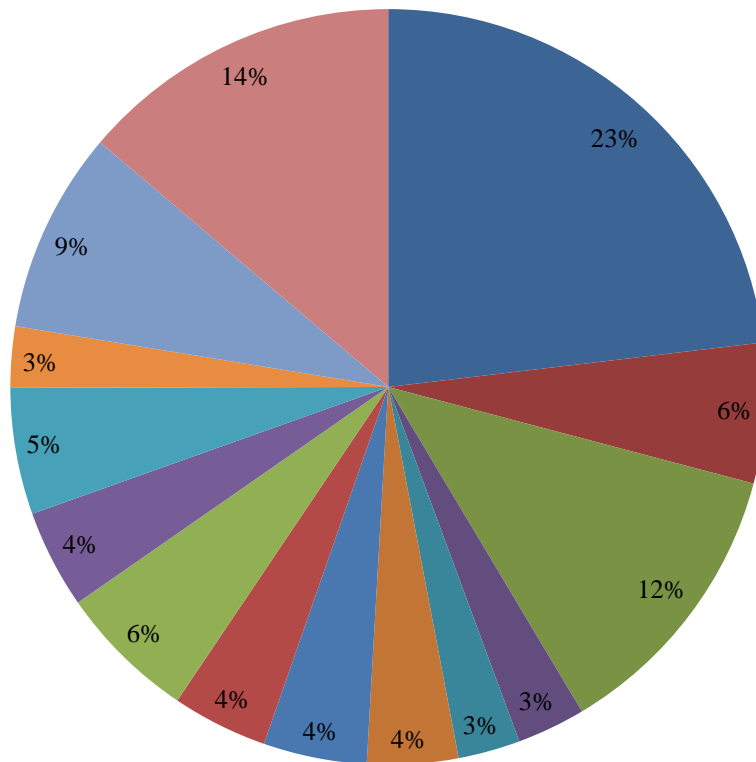# Chapter 4

DATA AND METHODOLOGY

The data used in this research work were extracted from the World Bank Development Indicators (WDI). The first variable in the equation which is the dependent variable and is shown here as GDP per capita was taken from the WDI and the thesis made use of constant prices of 2010 and also data from the years of 1981 to 2018. The first independent variable which is the public health expenditure was also taken from the WDI which made use of constant prices of 2010 from the years of 1981 to 2018. The last independent variable is the public education expenditure and it also used the constant prices of 2010 using data from the years of 1981 to 2018.

The OLS estimation method was employed in this research work in order to examine the impact of public health expenditure of the Federal Republic of Nigeria as well as the public education expenditure of the Federal Republic of Nigeria on the GDP per capita of the Federal Republic of Nigeria. In order to check the stationarity of the data extracted, the unit root test was introduced. A regression analysis was ran using all variables involved (GDP per capita as a dependent variable and health and education expenditures together as independent variable) but after careful examination of the outcomes or results of the estimation, it was found to provide false results due to the results gotten from the diagnostic tests. A multicollinearity problem was discovered. Hence, this research work used a bivariate econometric model to estimate the variables involved. This method was used in order to eliminate

any form of multicollinearity that gives problems in the acquired data set. When researchers have the problem of multicollinearity the most effective way of dealing with the problem is by removing a variable that has high collinearity with another (i.e. independent variable) and in this case since both variables are of great interest to the research work, a bivariate model should be considered, (Wooldridge, 2012, p.68).

It is very normal for the macroeconomic and financial time series to display trend and seasonality. It is erroneous to estimate series that are nonstationary on one another as this would definitely lead to unreliable conclusions of the results. In order to avoid having a wrong estimation result, this research work introduced the Augmented Dickey-Fuller (ADF) unit root test as well as the Phillips-Perron (PP) unit root test.

4.1 Gross Domestic Product per Capita

The GDP per capita data is used as a dependent variable in the estimation procedure. It encompasses of data set from the years of 1981 to 2018 using the constant values and a base year of 2010. The data was collected from the World Bank database.

4.2 Health Expenditure

The health expenditure is the first independent variable in this estimation. The data collected spans a period of 1981 to 2018 rounding up to a total of 37 years period. The data was collected from the World Bank database using the constant prices of the variables and a base year of 2010 was taken.

4.3 Education Expenditure

The education expenditure serves as the second independent variable in this estimation process. It takes into account all expenditures on education done by the federal government of Nigeria over the time period of 37 years (1981-2018). It takes

the constant prices using 2010 as a base year. The data was collected from the world

bank data base.

The functional form of this model takes the following shape:

GDP pc = f (GEE,GEH)

GDP pc = f (GEE)

GDP pc = f (GEH)

Where GDPpc represents the value of the GDP per capita

GEE represents the government expenditure on education

GEH represents the government expenditure on health

Econometrics form of the function is:

$$lnGDP\ pc = \ \beta_0 + \beta_1\ lnGEE + lnGEH + \varepsilon_t \tag{1}$$

$$lnGDP\ pc = \ \beta_0 + \beta_1\ lnGEH + \varepsilon_t \tag{2}$$

$$lnGDP\ pc = \ \beta_0 + \beta_1\ lnGEE + \varepsilon_t \tag{3}$$

Where lnGDPpc represents the log value of the GDP per capita

lnGEE represents the log value of government expenditure on education

lnGEH represents the log value of government expenditure on health

One of the assumptions of the OLS is the linearity in parameters and that is one

of the reasons why the log-log model was adopted. Another reason for using the log-

log model is to make the estimation outputs in form of percentages. This gives a

straight forward interpretation of the end result of the estimation. Another reason for

using the log-log model is to reduce or in other words eliminate the problem of

heteroscedasticity if found to be in the results of the estimation.

4.4 Descriptive Statistics

The descriptive statistics shows that the mean values are all positive where the

highest value is LNHEALTH (7.437753) and the lowest mean value being

LNEDUCATION (5.456913). The median shows the middle value for each variable as LNHEALTH has the highest middle value (7.344079) and LNEDUCATION having the lowest median value (5.285921) the median are not far apart from the mean values which shows that the data set has a symmetrical distribution. The maximum and minimum values shows the highest and lowest values for each variable respectively. The values ranged from a positive value to a positive value which indicates that at no time was there a negative or zero value. The standard deviation shows by how far a deviation has occurred from the sample mean with respect to each variable. The value of LNHEALTH can be said to be platykurtic since it has a value less than 3 which indicates it will produce lesser extreme outliers than those of a normal distribution. LNGDP is leptokurtic which has a value greater than 3 (4.826290). The jarque-bera test is used to test if the residuals are normally distributed and the probability results indicate that the residuals of the LNHEALTH and LNEDUCATION are normally distributed using the 5% significance level.

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Chapter 5

EMPIRICAL RESULTS, DISCUSSION AND CONCLUSIONS

This part of the thesis covers the representations and the interpretations of the empirical results of the analysis. The first part talks about the results of the stationarity test in which the full table is provided at the appendix of this thesis. The next part of the chapter talks about the OLS regression. The third session of this chapter talks about the discussions of results found then finally the conclusion and policy recommendations.

5.1 Stationarity Test

The stationarity tests were done to determine if the data collected were stationary and after applying the ADF and PP unit root tests, the test found out that the data were not stationary at levels so the first difference was taken and here they were found to be stationary at the 5% level of significance. The stationarity test output table is at the appendix of this thesis.

5.2 Ordinary Least Square Result

The table below shows the regression output of the OLS estimations.

Table 1: OLS Estimation Results

	Model 1 Combined Health and Education Results	Model 2 Health Regression Results	Model 3 Education Regression Results
Coefficients	Health= 0.259429 Educatio= -0.132147	0.153032	0.164463
probability	Health= 0.0002 Education= 0.0888	0.0000	0.0000
R-squared	0.686110	0.658625	0.535690
VIF	12.58366	1.0000000	1.000000

The table above discusses the findings of the OLS regression. The regression is divided into three models. The reason for this is to show evidence of the initial claims in Chapter 4 of misleading results that the multicollinearity would cause if the independent variables are not separated. The first model regressed all independent variables (health and education expenditures) together and from the table it shows that the VIF is 12.58366 which is greater than 10 and hence, it leads to a misleading result. The first model however will not be put to use due to the high value of the VIF.

The first model is immediately rejected as stated above due to the results of the multicollinearity. Evidence of the problem is clearly states in both the VIF results and and co-efficient of the education expenditure where it shows that the result is negatively related to GDP per capita. This means that investment in the education aspect clearly impacts the GDP per capita negatively. This also goes without saying that no literature listed above in the literature review aspect of the thesis states a negative co-efficient of the education variable and that negatively affects the economy.

The second model which regressed the health expenditure independently without the second independent variable (education expenditure) shows the results of the Health regression results on the above table. It shows that there is a positive impact of health expenditure on the dependent variable which is the GDP per capita and this improves the dependent variable by 0.1153032. it is also statistically significant with a probability of 0.0000 under all the significance rules. It also shows an R-squared of 0.658625 which is a goodness of fit of the model. This aligns with the literatures studied above. For example the studies of Idowu, (2014) also showed a positive relationship and impact of the health expenditure on the GDP per capita of the country with a value of 0.031679. although there is an increase in the impact of health expenditure to the GDP per capita of the country as this can be attributed to the fact that there has been a significant increase in the expenditures of health after the years of 2015 which is the year after the study (Idowu, 2015) was made. This proves that regardless of the recession that hit the country in 2016, the health expenditure still positively affected the growth of the GDP per capita of the country. This also goes with the human capital theory that states that investing in expenditures like the health expenditure tends to improve the well-being of the country's economy. However, it is believed that the value of the health expenditure should be above the recorded value in the thesis if the government spends more on the quality of the health care and accessibility of the health care rather than just providing quantity of health care outlets regardless of the quality.

The OLS regression of the last model which involves the regression of the education expenditure alone shows the results of the regression in the above table. It shows that there is a positive impact of the education expenditure on the GDP per capita and it improves it by 0.164464. It has a probability value of 0.0000 which

means it is statistically significant using all the significance levels. It also shows an R-squared of 0.535690. This also aligns with the study of the literatures in the literature review aspect of the thesis that Education do however affect the GDP per capita positively. Taking the research of (Zita and Obi, 2014) which came to the conclusion that education do impact the GDP per capita with a co-efficient of 0.123106, it aligns with the study of this thesis that education expenditure do in fact increase the GDP per capita and also it increased post the recession era of Nigeria partly due to the increase in the education sector over the years. This also affirms with the Human capital theory that states the investment in human capital such as the government expenditure on the education aspect will tend to improve the living conditions of the citizens of the country which will in turn lead to a better economic growth and prosperity.

5.5 CONCLUSION AND POLICY RECOMMENDATION

5.5.1 Conclusion

This thesis assessed the public expenditure on education, health and the Nigerian GDP per capita post the 2016 recession era that hit the country. The research tries to find out if there still exists a positive significance of the government expenditures on health and education on the economic growth of Nigeria post the 2016 recession that hit the Nigerian economy using a time series data from 1981-2018 amounting to a total of 37 years.

From the literatures reviewed it was stated that when invested in human capital, there tends to be an increase in the GDP per capita of the nation. This was also backed up by the human capital theory that was also stated in the theoretical part of the literature review. The results gotten from the estimations aligns with the theories and existing literatures that investment in the education and health sectors tends to

improve the economy as well as post the recession of 2016. However, there should be a better increase than what was observed in the results. The first chapter of this study mentioned the observations of Olaofe (2005), he stated that the steady decline in facilities of the learning environment as well as the non challant attitude of government personnel to tackle this problem has led to the decline in learning abilities. This study believe that if this problem is tackled by improving the quality of the education system and its facilities rather than increasing the quantity of educational institutions, education would have a better effect on the economy. This also goes with the health as well where the results can actually be better if more investment is made in combating diseases such as cholera as well as deadly illness such as malaria and the likes of them. Investing in modern facilities and medications to fight these deadly diseases will increase the life expectancy of the masses. This goes without saying that the need to make sure adequate health care is reachable or readily available to the masses would improve the living conditions of the masses.

5.5.2 Policy Recommendation

There are various features of the Nigerian economy but among all, the most basic and noteworthy one is that it is a mono-product economy. This shows that the Nigerian economy both from the aspect of the public as well as that of the private enterprise relies heavily on the provisions it gets from the oil sector and this has to change. Both, public and private sectors of the economy needs to look for a way to diversify the economy and shift its attention from the oil sector alone. It was found in various research works listed in the literature review of this thesis as well as in this research work as well that even post the recession era, investments made in both the aspect of education as well as health has led to a positive increase in the GDP per capita of the federal republic of Nigeria and hence if the federal republic of Nigeria is

to increase its economic growth, investment in human capital should be considered a top priority. After critical review, this thesis therefore recommends the following solutions:

Nigerian government should highly consider investing in education sector such as the availability of a better learning environment and an experienced and well advanced learning facilities and equipment for its timing population. A body should also be set up whose sole purpose is to evaluate all schools in the country, both public and private schools to make sure every school meets the necessary criteria or standard to provide a sound education to the timing population.

The health sector should be equipped with the best equipment in other to sustain a high life expectancy, low mortality rate etc. Foreign bodies should also be encouraged by the Nigerian government to help tackle the aspects in which it doesn't have enough knowledge to combat. Foreign bodies like WHO should be encouraged by the Nigerian government to help the country. All hands must be on deck by every institution both home and abroad that health is of utmost priority and the pursuit of investment in it should not be taken likely hence improvement of the living conditions of the citizens should be treated with utmost importance.

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APPENDIX

Table 2 below shows the descriptive statistics used in this study

Table 2: Descriptive Statistics

	LNGDP	LNHEALTH	LNEDUCATION
Mean	6.267153	7.437753	5.456913
Median	6.305000	7.344079	5.285921
Maximum	7.816772	7.848970	7.317584
Minimum	2.818995	7.188036	2.159869
Std. Dev.	1.033100	0.232142	1.231092
Skewness	-0.999997	0.536342	-0.604025
Kurtosis	4.826290	1.739780	3.454830
Jarque-Bera	11.61425	4.336444	2.638237
Probability	0.003006	0.114381	0.267371
Sum	238.1518	282.6346	207.3627
Sum Sq. Dev.	39.48990	1.993924	56.07671
Observations	38	38	38

Table 3 below shows the unit root test results, showing that all the variables are I(1)

at 5% level of significance at first difference.

Table 3: Unit Root Test

ADF (0)	GDP PER CAPITA	EDUCATION	HEALTH
INTERCEPT (C)	-2.307095	-2.30795	-1.084852
TREND AND INTERCEPT	-4.489060	-4.489060	-4.464888

PP (0)	GDP PER CAPITA	EDUCATION	HEALTH
INTERCEPT (C)	-2.070462	-2.070462	-1.646410
TREND AND INTERCEPT	-4.315612	-4.315612	-4.464888

We fail to reject the null hypothesis at levels, which means the series are non-stationary at level so we have to take the first difference.

ADF (1)	GDP PER CAPITA	EDUCATION	HEALTH
INTERCEPT	-7.828521**	-7.828521**	-9.687206**
TREND AND INTERCEPT	-7.717583**	-7.717583**	-4.801487**

PP (1)	GDP PER CAPITA	EDUCATION	HEALTH
INTERCEPT	-13.92550**	-13.92550**	-18.58969**
TREND AND INTERCEPT	-13.95303**	-13.95303**	-21.14836**

*Represents 1% level of significance, **Represents 5% level of significance, ***Represents 10% level of significance,

Here reject the null hypothesis as all the variables are stationary at first difference and at 5% significant level.