THE IMPACT OF GOVERNMENT EXPENDITURE ON HUMAN CAPITAL DEVELOPMENT IN NIGERIA

(1981-2019)

BY

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17020301007

BEING A PROJECT SUBMITTED TO THE DEPARTMENT OF ECONOMICS, COLLEGE OF HUMANITIES AND MANAGEMENT SCIENCES, MOUNTAIN TOP UNIVERSITY.

IN PARTIAL FUFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELORS DEGREE IN ECONOMICS

2021.

CERTIFICATION

I certify that this work was carried out by OLUSEYI DANIELLA O. under my supervision at the Department of Economics, Mountain Top University, Ogun State, Nigeria.

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DEDICATION

This project is dedicated to GOD ALMIGHTY, for His everlasting mercies and unending grace upon my life. He has been my rock from the start of my journey to this very moment in which I complete my Bachelor of Science degree programme in Economics. All glory, praise, honor and adoration be unto my King. He alone is worthy of being exalted.

ACKNOWLEDGEMENTS

I thank the Lord for being my strength and seeing me through the completion of this programme, without the Lord, I am nothing. A project of this kind could not have been completed without his grace upon my life upon which I am alive. I say thank you Lord.

I am forever indebted to my family, Mrs. Scholastica Idowu and Mr. Oluseyi Opeyemi for their endless supports, prayers and assistance throughout this journey. Without their presence beside me, all this would not be possible. I express my sincere appreciation to my honorable and amiable supervisor and head of department, Dr. Ologundudu Mohjeed M., for his continuous words of encouragement, guidance and constant check-ups on me as I carried out this project unto its completion. May praises never cease in your mouth in Jesus name, Amen.

I am also highly grateful to Dr. Obafemi Young on his continuous assistance and recommendations concerning this project, my burden was lightened by your support. I also thank my competent lecturers in likes of Dr. Clement, Mr. Oluyomi and Dr. Babasanya among others, for their contribution to my academic standing thus far. I will be forever grateful to have crossed paths with such intellects in life. I pray that God's blessings will continually be upon your lives in Jesus name. Amen.

I also want to appreciate my friends and coursemates for their love and care towards me in seeing this project through, Abimbola Eniola, Ayodele John, Alabi Aduragbemi and Usiade Gloria amongst others. May God raise helpers for you at every point of need in Jesus name. Amen.

TABLE OF CONTENTS

PAGES

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

LIST OF TABLES

PAGES

ABSTRACT

This research analysis the impact of government expenditure on human capital development and also gives an insight on how human capital development, via this route, effect economic growth. This time series analysis covers a time period of 1981-2019. The study makes use of the Auto Regressive Distributed Lag model (ARDL) in estimating the long run and short run effects og government expenditure on education, government expenditure on health and human capital development on economic growth and development. The study made use of the bounds test approach to cointegration to estimate long run relationship between concerned variables and the Error Correction Model (ECM) to estimate short run relationship among relevant variables employed in this study, some of which are growth rate of Secondary School Enrollment Rate, growth rate in Life Expectancy Index, growth rate in Real GDP, Real Income per Capita and growth rate in Human Capital Index among others. The associated speed of correction of short run shocks into long run equilibrium was also significant in making conclusive inferences in this analysis. This study discovered a negative and insignificant effect of government expenditure on health and education sectors in human capital development and inferred a positive and insignificant effect of human capital development via government expenditure on economic growth. This study recommends a more strategic allocation of funds across concerned sectors and a systematic review on the method of operation in the health sector amongst others.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND TO THE STUDY

It remains an inarguable fact by various economic scholars such as Schultz (1961), Becker (1964), Uzawa (1965), Rosen (1976), that human capital is indeed an important factor when it comes to economic growth and development. However, the importance of government expenditure on human capital has been overlooked severally by most of these writers as one of the major areas of focus is human capital development and its effect on economic growth. As the global economy tends more towards knowledge-based sectors (such as manufacturing, pharmaceuticals, telecommunications, ICT based services e.t.c.), human capital development is gradually becoming an item of concern. Human capital development is regarded as an investment in man by his lonesome or via other routes, in which his development is the focus, as a creative and productive resource.

Human capital development is cogent to the socio-economic development of a nation, which includes education, health, labor, employment etc. Investing in human capital development is highly critical to a nation as it ensures its human resource endowment is highly knowledgeable, skilled, productive and healthy so as to allow exploitation of other resources to foster growth and development. Generally, investment in human capital development means expenditure on health, education, social services etc. However, for this study, the focus is on education and health. This is because both are major focal points of expanding human capabilities as health is central to well-being and education is important in order to live a satisfying, rewarding life (Bloom & Canning, 2003).

Human capital is considered by prominent economic philosophers to be the most valuable asset of a country and needs to be mobilized, developed and empowered. Over the years, there have been numerous undebatable evidence showing there is a strong positive link between government expenditure and human capital development. Hence, human capital formation is undoubtedly the pivot for any meaningful program of socio-economic development of Nigeria, and indeed of any country (Ejere, 2011). The importance of government expenditure is evident in both this study and the real world. The impact of government expenditure cuts across all sectors of the economy. In other words, it has a direct relationship with economic growth and development via its propelling factors. Government expenditure is broadly classified into recurrent; reoccurring expenses such as wages and salaries, depreciation e.t.c. and capital expenditure; incurred on the creation or acquisition of fixed assets such as construction, renovations, repairs e.t.c. (Nwaeze, 2010). Although government spending on education and health is important, it is not an end in itself. The goal is to create skills that will promote productivity and growth.

For decades, Nigeria has neglected the backward motion evident in both its infrastructure and human capital development which has led to its decrease in productivity, as prominence had been placed on amassing physical capital to the detriment of human capital in Nigeria's quest to rapid economic growth and development. Despite the fact that human capital has been identified as a forerunner for rapid economic growth, the Nigerian government has given little relevance to expenditure in the health and education sectors. Also, according to the Global Development Network and Center for the study of the Economies of Africa (2010), the Nigerian government has given less concern to spending on education which is reflective in the amount allocated to the sector as a percentage of GDP. The poor state of human capital development in Nigeria has been

partially responsible for the high level of unemployment, poverty and negative growth rate which plunged the economy into an economic recession with a negative growth rate of -2.2% (NBS, 2016). The budgetary allocation to the education sector has persistently been below international standards. The United Nations Educational Scientific and Cultural Organization (UNESCO) postulates 26% of a nation's budget to education. Reverse was the case in Nigeria, in over 54 years of consideration from 1960-2014, 29 years had budgetary allocations below benchmark expected for a country in dire need of growth, talk less of development. In each of these years, budgetary allocation for education was below 5% of total yearly budget. The education sector allocations were nothing short of alarming as it ranged between percentages of 0.53 to 1.93 for the years 1970-1973, 1987, 1991, and 2011, not showing any sense of purpose nor urgency (Uzodigwe, Umeghalu & Ozoh). Likewise, in the health sector, as recommended by the UN (United Nations), benchmark expenditure on health for a country should range between 8% and 10%. Although, expenditure in the health sector in Nigeria has been on the increase, from N586.2 million in 1993 to N34647.9 million in 2007 to N98211.51 in 2010 in terms of capital expenditure and from N12.48 in 1970 to N72290.07 in 2007 to N77657.43 in 2010 in terms of recurrent expenditure (Oni Lawrence, 2014). However, it should be noted that despite this increase in government expenditure towards health provisions, its contributions to human health remain marginally low.

Over the years, successive Nigerian government recognize the importance of human capital development process and embarked on various programs and projects, which led to the establishment of educational institutions and health centers throughout the country, leading to an increasing trend in government expenditure (Maku, 2009). Although, these sectors are still challenged with numerous issues needing urgent attention, there is still a need to press forward, recognizing the fact that developing countries also have to meet full

potential in terms of human capital to achieve a level of economic development. To this end, this study examines the impact of government expenditure on human capital development, education and health being the points of focus.

1.2 STATEMENT OF THE PROBLEM

Less developed countries such as Nigeria are characterized by economic backwardness manifesting itself in low labor efficiency, deficient supply of entrepreneurship, limited specialization in strategic functional managerial areas, factor immobility which minimize the incentives for economic change. Also, the quality of the populace at large is deficiently low as there is no efficient technical knowledge and skills available to be put to use in alternative production techniques to facilitate growth and development. In the absence of an improvement in the quality of human capital, economic growth and development is simply a mirage. In cognizance of this fact, government expenditure on the development of human capital is crucial in any economy.

Nigeria however is operating in an opposite direction. The financing of human capital investment Nigeria has often been described as inadequate, with budgetary allocations to the sectors of education and health hardly exceeding an average of 4% in terms of the nation's budgetary provisions (Orubuloye & Oni, 1996; Riman & Akpan, 2012). The poor state of human capital development in Nigeria has been partly responsible for the high level of unemployment, poverty and negative growth rate. Although the notion to aim for economic development has been a focal point since time immemorial, the issue was with on which point the focus dwelt. Prominence had been placed on amassing physical capital to the detriment of human capital in Nigeria's quest for rapid socio-economic growth (Godstime Osekhebhen & Uchechi Shirley, 2014). Admist all this,

there has been increased academic interest in this subject matter, with varying outcomes of course.

In a good number of researches, most economic scholars such as Mba, Mba, Ogbuabor & Ikpegbu (2013); and Eigbirelolen & Anaduaka (2014) among others consider human capital development in terms of economic growth, not many have considered what propels this factor as well as give an insight to its importance as a contributor to economic growth. Also, most of these studies arrive at varying conclusions which does not give an exact direction on the path by which human capital development affects economic growth, neither does it consider the role government expenditure plays in this. However, this study seeks to evaluate the impact of government expenditure on human capital development, so as to show if the key to moving Nigeria forward lies in paying more attention to the development of human capital, as well as give an insight on its impact on economic growth in the country.

1.3 OBJECTIVES OF THE STUDY

The broad aim of this study is to examine the impact of government expenditure on human capital development in Nigeria. Specifically, this study seeks to;

i. Investigate the impact of government expenditure on education in Nigeria.
ii. Examine the impact of government expenditure on health in Nigeria
iii. Evaluate the impact of human capital development on economic growth in Nigeria.

1.4 RESEARCH QUESTIONS

In order to achieve the objectives of this study, the following questions are to be answered;

i. How does government expenditure on education affect human capital development in Nigeria?
ii. How does government expenditure on health affect human capital development in Nigeria?
iii. How human capital development affect economic growth in Nigeria?

1.5 RESEARCH HYPOTHESIS

The following null hypothesis guide this study in accordance with the above research questions;

H_{01}: Government expenditure on education has a positive impact on human capital development in Nigeria.

H_{02}: Government expenditure on health has a positive impact on human capital development in Nigeria.

H_{03}: Human capital has a positive impact on economic growth in Nigeria.

1.6 SIGNIFICANCE OF THE STUDY

Nigeria remains majorly an oil dependent nation, any event of crisis in this sector is translated to all other sectors as once witnessed in the 1980s (Ainabor, *op.cit*., 34-40). Presently, it is even worsened as there is a significant drop in crude oil prices, leading to a massive drop in Nigeria's growth rate, employment levels as well as the devaluation of the Nigerian currency in relation to other major countries. These series of repeated events as a result of Nigeria's major focus on a single part of the economy is a call to order as to why the

Nigeria government should focus on other areas that contribute to the growth and development of the country such as human capital. Carrying out this research will serve as a guide to the government to provide a framework for policy formulation, directives, regulation and implementation towards this end. It also seeks to aid them with information of specific targets that would ultimately unleash the country's human capital potentials to the fullest.

This study also seeks to add to the body of knowledge as there have not been a lot of researches majorly on the relationship between government expenditure and human capital development. The few researches that have been carried out have come out with a blurry conclusion as there are contradicting conclusion across various researchers, hence, the need for reevaluation. To this effect, this study will examine the link between this variables, and also give an insight on its effect on economic growth without any publication bias. At the individual level, this study would help educate people on the relevance of developing human capital with the objective of improving economic growth and development.

1.7 SCOPE OF THE STUDY

This study is an analysis of the period running from 1981-2020. The selection of this period is based on the accessibility of information and also on the reality that some significant changes in the Nigerian economy have occurred within the specified era, specifically in the educational and the health sectors due to various programs and activities run by the government.

In a bid to update the existing body of knowledge, as most relevant studies to this subject matter are a few years behind, this study seeks to examine the relationship between government expenditure and human capital development, as well as give an insight towards

its effect on economic growth using the ordinary least square regression and correlation analysis, which are analytical techniques that measures the relationship, and impact among the independent and dependent variables. This study employed the use of secondary data. The time frame for the data analysis in this study covers a period of 38 years.

1.8 ORGANIZATION OF THE STUDY

This study is organized specifically into five chapters. Chapter one is the introduction giving an insight into the basis of this research work via the background of the study, the statement of research problem, the objectives of the study, the research questions, hypothesis, significance of the study, its scope and the organization of the study. Chapter two contains the conceptual review, theoretical review, empirical review and the gaps in literature concerning this study. Chapter three entails the methodology adopted in carrying out this research. It consists the research design, the technique used via secondary data, the model specification and the analysis of subsequent results. Chapter four consists of a display of findings and discussion on how government expenditure affects human capital development and will also give an insight on its effect on economic growth. Chapter five presents the conclusions drawn from this research and possible policy recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter discusses the conceptual, theoretical and empirical review of government expenditure on education and health as indicators of human capital development and also sheds light on its impact on economic growth. It focuses on the pre-existing works by various scholars on this subject matter and their disposition. It would also highlight various theories that are in relation to the subject matter and which one this study abides by.

2.2 CONCEPTUAL REVIEW

2.2.1 OVERVIEW OF GOVERNMENT EXPENDITURE AND HUMAN CAPITAL DEVELOPMENT IN NIGERIA

The impact of government expenditure encompasses various sectors of the economy, in other words government expenditure has a direct relationship with economic growth and development. Governments in every nation, whether developed or developing, have the responsibility of carrying out some statutory roles within the country. Some of

these roles entail protecting the citizens against domestic and external aggression, catering to the welfare needs of her citizens, and providing social services for its people. However, their activities are not limited to these. Carrying out these activities and other roles of importance requires a huge amount of spending by the government.

Available statistics show that total government expenditure and its components have continued to rise in the last three decades. In the same manner, composition of government recurrent expenditure shows that expenditure on defense, internal security, education, health, agriculture, construction, transport and communication increased during the period under review. Furthermore, the various components of capital expenditure, that is, defense, transport, education, power, agriculture, health and communication also depict an upward trend between 1960 and 2014 (Nurudeen & Abdullahi, 2010).

Government expenditure in Nigeria, has been on the rise with such recurring increase evidenced in almost all the sectors of the economy (Iheanacho, 2016). A cursory breakdown of the 2019 appropriation bill of Nigeria shows that the Federal Government seeks to spend USD 24.41 billion, which is an incremental value from the about 2.5% estimate of 2018, whose proposed size of USD 23.8 billion was 16% higher than the previous estimates of year 2017. A huge portion of the 2019 appropriation bill was put forward to be spent on recurrent expenditure, which stood at USD 11.18 billion; capital expenditure at USD 5.6 billion; and debt servicing at USD 5.92 billion, on its own standing in for the total estimate by about a quarter. The capital expenditure alone stands at 23% of the total budget, while recurrent expenditures has a value of 45.75% (Segun Subair,2019). The share of education in Nigeria's total government expenditure was below 26% of the Gross Domestic Product between years 1980 to 2010, which was below the minimum standard recommended by the UNESCO. Since the oil crisis in the 80s, the proportion of capital budget allocated to

education has been continuously lower than the proportion of recurrent expenditure (Oraikhi & Ameh, 2014).

In terms of human capital, that is, education and health, Nigeria's educational system is not much to write home about. According to Babatunde and Adefabi (2005), the education that most Nigerians have access to is not up to standard. Children attend primary schools for six years, but the education received is not efficient nor effective. The pupils to teacher ratio was 37 to 1, female youth literacy rate was at 20%, while that of males up to the 1990s stood at 13%. In 2002, 33% of the relevant age group attended secondary schools and only 4% attended tertiary schools. This is evidenced by the facts that spending per student in tertiary schools is 52.98% of Nigeria's GNP. Also, public spending on education was only 0.9% of the GNP in 2002 (World Bank, 2004). None of Nigerian Universities made the list of the first 1000 universities equipped with quality in 2005. As at 2006, four universities barely made the list in 2006 in the ranking of the first 100 African universities (Umoh, 2006). The Central Intelligence Agency (CIA), as at 2013, stated that the literacy rate in Nigeria stands at 61.3% thereby supporting the poor governmental expenditure to increase the literacy rate in Nigeria.

The financing of human capital investment in Nigeria with budgetary allocations to these sectors (most importantly, health and education) hardly exceeding, on average 4% of the nation's total budgetary provisions has often been depicted as inadequate (Orubuloye & Oni, 1996; Riman & Apkan, 2012). For instance, education and health care spending in Nigeria is sub sectioned into public and private spending. While public health expenditures in Nigeria account for 20 to 30% of total health expenditures, private expenditures on health account for 70-80% of total health expenditure which is significantly higher than the allotment to that of

the public sector. It is expected that budgetary allocations to the health sector would create an increment in the quality of health and reduce the overall mortality rate in the country.

2.2.2 TREND ANALYSIS ON GOVERNMENT EXPENDITURE ON EDUCATION AND HEALTH

The pursuit of educational advantages in West African countries had prompted most of these countries to increase their expenditure on the educational sector (Bryceson, 2002). In Nigeria, as at 1980, government educational expenditure was held at #2 billion, which was the highest educational expenditure in Africa (World Bank, 2003). During this period, government educational expenditure represented 22.3% of total government expenditure. This value increased to #3 billion representing a value of 23.8% of total government expenditure as at 1981. After this period, government expenditure on the educational sector witnessed a gigantic fall as its value went from #3 billion to #162 million in years 1981 and 1983 respectively. It went further down to #156 million in year 1985. Although, with the advent of the 1990's, this sector experienced an increase in year 1988, much efforts had been put into place to increase budgetary allocations to this sector. In 2000, budgetary allocation to this sector stood at #58 billion and later on increased to #171 billion and #394 billion in 2010 and 2017 respectively (World Bank, 2017). Without a doubt, the Nigerian government had increased their educational spending significantly over the years.

The total allocation to education between years 2009 and 2018 stood at #4,038,115,000,000, which is four trillion, thirty-eight billion, one hundred and fifteen million naira in words. By this figure, the implication is that an allocation of #403,811,500,000 was allotted to the education sector on an average between years 2009-2018 on an annual basis. Meanwhile, the total budget estimated by the Federal Government

during this period stood at a value of #55,192,000,000,000 which is fifty-five trillion, one hundred and ninety-two billion naira, alongside an average annual budget of #5,519,200,000,000 which is five trillion, five hundred and nineteen billion, two hundred million naira in words. These results also indicate that the Federal Government on Nigeria has been allocating only 7% on the nation's average annual budget to education within years 2009 to 2018. These figures are far below the prescribed minimum requirement standard set by the UNESCO for developing nations which stands at 26%.

After the introduction of the MDGs in 2000, primary school enrolment increased to 67.4%. Also, between 2005 to 2010, this percentage had experienced an increase from 68.2% to 69.5% respectively. In 2017, primary school enrolment experienced an increase to 74.3%. In like manner, secondary school enrollment had also experienced some significant increase in Nigeria. In 1980, total secondary enrollment rate was 32.79%. This value realized an increase in year 1990 to 33.2% and further to 36.39% in 2000. Right after the MDGs project, secondary school enrollment rate increased to 60.77% in 2010 and further rose to 63.66% in 2017 (World Bank, 2017).

Over the years, healthcare financing in Nigeria has been described as inadequate with budgetary allocation to health barely exceeding 7% of the nation's total budget. This allocation clearly falls below the April 2001 Abuja declaration of allocating a minimum of 15% of national budget to the health sector. According to a report released by WHO in 2011, Nigeria and 26 other countries were listed under the category of substandard progress towards the Abuja declaration, while only three countries were listed as to being on track in accordance with the Millennium Development Goals with respect to health. Furthermore, within the three tiers on the health care system, that is, the primary, secondary and tertiary health care, there is an uneven allocation of finance and available facilities. Also, due to

insufficient financial provisions for health, there is a shortage of people and infrastructure to provide individuals with high-quality treatment. Furthermore, there is an obvious shortage of these facilities, which has had a substantial impact on healthcare services.

Between 2014 and 2020, there have been significant changes in the health-care budget. The health sector received only 7.23 percent of the #4.695 trillion budget of the Federal Government in 2014. In 2015 and 2016, there was a significant drop. The health sector received a budgetary allocation of #347.26 billion (6.85%) in 2015, which was comparatively lower than the 2014 figure. In 2016, 2017 and 2018, health sector allocation compared to the Federal Government's expenditure size was determined to be 5.83%, 5.11% and 5.79% respectively. It is worthy of note that since the post-Millennium Development Goals era (2016- present), healthcare budgetary allocations have consistently fallen below 15% of the national budget.

The healthcare budget for the year 2018 received a major boost as a result of the increased allocation to the Ministry of Health and the National Assembly's release of #55.15 billion for the implementation of the National Health Act, which was approved in 2014. Furthermore, the health budget went below 5% in 2019 and 2020, indicating a decrease in health spending compared to prior years.

2.2.3 CONCEPT OF HUMAN CAPITAL

Human capital as regarded by Schultz (1993) is the improvement of the assets of firms and employees so as to increase the volume of productivity and improve competition. In this manner, human capital transverses the accumulation of useful abilities by members of the society and it being acknowledged globally as a means of creation of wealth (Oladeji,

2015). Sanyaolu (2008) postulated human capital as the bedrock in which productivity in Nigeria rests. According to Adediran (2014), human capital is being recognized as a catalyst to national development in major countries of the world.

Capital, in economic terms, refers to those factors of production used in the creation of goods or services that are not entirely consumed in the production process themselves, while the human element takes charge of all the economic activities such as production, consumption and all transactions to the consumers (Boldizzoni, 2008). Human capital efficiency improves the manufacturing process substantially. As a result, human capital is seen as a critical component in the accumulation process. Human capital encompasses the information and skills acquired through education and training (Beach, 2009). Health also constitutes an important aspect of human capital development, since a healthy labor force is required for long-term increased productivity, which is vital for economic progress.

Education and health as one of the cogent factors of human capital are fundamental to economic growth and development as they are one of the key determinants of economic performance at both the micro and macro levels. This stems from the fact that education and health are both direct components of a person's well-being and a type of human capital that enhances a person's skills (Bloom & Canning, 2003). Grossman (1972) has equally posited that education and health are forms of human capital. Human capital, by implication, is a critical industrial component that provides value to the manufacturing process.

Human capital investment was discovered to be the most effective and efficient means to improve an individual's earnings in the 1950s, making it more effective and efficient than other production inputs such as land, financial capital, and labor force (Woodhall, 2001). Human capital as a notion dates back to 1776, when it was first proposed as a scientific hypothesis by Fitzsimons (1999). Human capital, according to Schultz (1961), is one of the

most significant variables that affects economic progress. According to him, human capital is the stock of productive knowledge and skills in possession of workers. Human capital according to Rastogi (2002) is depicted as "knowledge, competency, attitude and behavior embedded in an individual". Romer (1990) describes human capital as "a fundamental source of economic productivity". Rosen (1999) states human capital is "an investment that people make in themselves to increase their productivity". Moreover, human capital has been characterized as "an amalgam of characteristics that impact the value of a worker's marginal output, such as education, experience, training, intellect, energy, works habits, trustworthiness, and initiative" (Frank & Bemanke, 2007).

It is of a notable fact that the value of human capital pertaining to each individual varies due to a number of factors. These factors are:

1. Innate ability: Because of intrinsic variations, workers might have varying levels of skills/ human capital. There is some component of IQ that is hereditary in origin, according to research in biology and social biology. The significance of this notion, however, is still debatable.
2. Schooling: This being the focus of most research works, is the most easily observable component of human capital investments. In most third-world nations, educational inequalities account for just a tiny portion of wage differences; hence, human capital is about much more than education. Despite this fact, the analysis of schooling is likely to be very informative.
3. Pre-labor market influences: This idea is concerned with the peer group impacts to which people are exposed before they enter the labor market, since this may have a significant impact on their human capital before they enter the workforce. At some

level, the study of these influences is primarily social in nature, but there is also an element of investment involved in it.

4. Training: This term refers to the component of human capital that employees gain after completing their educational training. It is often linked with a certain set of abilities that are helpful in a particular sector or that are beneficial with a specific set of technology.

Loosely speaking, human capital corresponds to any stock of knowledge or characteristics the worker has (either innate or acquired) that contributes to his or her productivity. The gradual yet consistent shift of the focus by the global economy towards more knowledge-based sectors (such as research and development, pharmaceuticals and ICT-based sectors), has encouraged policy makers to pay more attention to skills and human capital development (OECD, 1996).

Individuals' skills, knowledge, productivity, and creativity are developed via the process of human capital creation, which is a term used to refer to the process of creating human capital (Isola & Alani, 2012). It is a development strategy that places the needs of the people at the center of its efforts, and it is widely acknowledged as an agent of national development in every country in the world. One of the most important methods to improve the quality of human resources is to make education and health services available to the general public. The theory of human capital development emphasizes that people's productivity and efficiency may be increased by educating them and keeping them in good health.

2.2.4 CONCEPT OF GOVERNMENT EXPENDITURE

It was not until the 19th century that classical economists began to place a high value on public spending. They pushed for a laissez-faire economic strategy. Those who shared this position believed that government spending was wasteful, they thought that if money was left in the hands of private individuals, greater outcomes would be obtained. As a result of free economic competition, they claim that the economy prospers as does commerce and industry, and remain stable. This old laissez-faire attitude has suddenly been thrown out with the bathwater. Every government takes an active role in the organization of their own nation. The spectrum of economic activities has greatly expanded. There has been a significant increase in government spending over the course of the last few decades. This division of the public finance which was rejected by the classical economists is now considered to be one of the most significant department of public finance (Ogundipe & Oluwatobi, 2016).

In developing economies like Nigeria, Iheanacho (2016) noted that government (or public expenditure) policy does not only hasten economic growth and promotes employment among the masses, but also plays an active role in poverty alleviation and ensures equity in income distribution.

Public or government expenditure are the expenses of the government for its own maintenance and on the society and the economy as a whole. The state spends on defence, education and other social services. It also spends on servicing national debts, capital investment such as airports, etc. Government also spends on its own maintenance as well as on other countries and governments.

Various classifications have been made to government expenditures according to various economists. Oni, Aninkan and Akinsanya, 2014; Modebe, Okafor, Onwumere and Ibe, 2012 classify government expenditure into three main types:

(i) Public purchases of goods and services for current use are classed as public consumption;

(ii) Public purchases of goods and services intended to create future benefits, such as infrastructure investment or research spending are classed as public investment; and

(iii) Payments for debt services are classified as transfer payments.

As far back as 1909, Ely and Wicker (1909) lend support to classification of public expenditure as:

(i) Expenditures for fulfilling the Protective functions of the State. Of the general class of expenditures incurred in fulfilling the protective function of the State, the first to be mentioned are those of external security, internal security and social security expenditures;

(ii) Expenditures for fulfilling the Commercial Functions;

(iii) Expenditures for fulfilling the Developmental function (i.e. education); and

(iv) Expenditures for the maintenance of Government.

The popular classification comprises of recurrent and capital expenditures.

(i) Recurrent expenditure: The expenditures of government which occur regularly throughout the year are referred to as recurrent expenditure. They must be made regularly if the functions of government must be maintained. They include regular salaries of all employees, insurance expenses, legal expenses, money spent on the running of essential services or regular maintenance of infrastructural facilities and money spent on administration.

(ii) Capital expenditure: This on the other hand, refers to the expenditures of government on the acquisition of things of permanent nature (Nwaeze, 2010).

They entail all expenditure on capital projects such as, factories, technology, construction of roads, educational facilities, buildings, bridges and all permanent structures and assets. These usually involve huge sums of money and also form the basis of the physical development of a nation.

According to Isedu (2002) in Isibor, et. Al. (2015), an avenue through which capital expenditure impacts economic growth is the creation of employment. The multi-faceted problem of unemployment in the economy is reduced to the barest minimum. Another method through which is promotes economic growth is the re-allocation of resources to various sectors of the economy, moving from the surplus areas to the deficit areas where they are needed. This opens up an increased number of opportunities which will improve the citizens of the country. The breakdown between these two types of spending is very important.

2.3 THEORETICAL REVIEW

There have been efforts by various scholars to establish the importance and inter-relationship between government expenditure, human capital, its development and subsequently its contribution to economic growth at large. The effect of government expenditure on human capital development must therefore be brought to clarity. To this end, these theories related to government expenditure and human capital development are being examined.

2.3.1 ENDOGENOUS GROWTH THEORY

This theory was established to refute the neoclassical exogenous growth models, as it made predictions about economic growth without factoring in technological changes and also had the idea that exogenous factors determined long-term economic growth. Endogenous

growth theory holds that economic growth is primarily the result of endogenous and not external forces. Endogenous growth theory holds that investment in human capital, innovation, and knowledge are significant contributors to economic growth (Temple, 2009). The theory also focuses on positive externalities and spillover effects of a knowledge-based economy which will lead to economic development.

The endogenous growth theory primarily holds that the long run growth rate of an economy depends on policy measures. For example, subsidies for research and development or education increase the growth rate in some endogenous growth models by increasing the incentive for innovation. This theory states that there are increasing returns to scale by investing in human capital through education or training programs, as doing so can improve the quality of labor, which increases productivity. The accumulation of capital as necessary to assess the complicated nature of development (Temple, 2009).

2.3.2 ADOLPH WAGNER'S LAW OF INCREASING STATE ACTIVITIES

Adolph Wagner, a German economist of the latter half of the 19th century, who based his Law of Increasing State Activities on historical facts, primarily of Germany, which reflected the growing importance of government activities and expenditure as an inevitable feature of a "progressive" state. He tried to establish a direct link between economic development and growth and the relative size of public sector and consequently public expenditure. However, it did not reveal the causal factors under which a government has to increase its activities and public expenditure as time passes. It was applicable only to modern progressive governments which had an interest in expanding public sector of the economy for its overall benefits, and public expenditure would grow faster than output. Expanding state activities had a tendency to take a definite long-term trend, though in the short-run, financial

difficulties could arise. But in the long run, the desire for development of a progressive people will always overcome these financial difficulties (Musgrave & Peacock, 1958).

According to Wagner's Law the most crucial determining force for the rise in public expenditure is the growth of real per capita income or in other words increased public demand for new public services arising out of the growth of real per capita income. According to Wagner (2007), three factors boost government spending. These are:

i. substitution of the private sector with the public sector during the industrialization phase.
ii. Government is required to provide cultural and welfare facilities. For example, education, health, pension etc.
iii. Government compensating for technological change and monopolization brought about by enhanced industrialization, via offering of products through budgetary means.

2.3.3 WISEMAN AND PEACOCK DISPLACEMENT THEORY

Among various attempts at the positive theory of public expenditure stressing the supply side as the more important determinant of the growth of public expenditure, the displacement hypothesis of Peacock and Wiseman has received deepest attention.

Peacock and Wiseman (1967) posited that public spending development does not take place in the same manner as Wagner theorized. Peacock and Wiseman choose the political proposals rather than the organic state where it is considered that government likes to spend cash, individuals do not like increasing taxation, and individuals vote for ever-increasing social services. They referred to this as the 'displacement effect'. Public expenditure is displaced upwards and for the period of the crisis displaces private expenditure for public

expenditures. The process represents an upward shift in the trend line of public expenditure. After this period of crisis, public expenditure does not, however, fall to its original level. A war is not fully paid for from taxation; no nation has such a large taxable capacity. Because of this, a fresh level of "tax tolerance" will occur. Individuals will now accept new, earlier believed intolerable rates of taxation. Countries therefore borrow, and debt charges have to be met after the event.

2.3.4 HUMAN CAPITAL THEORY

This theory shows how a worker's efficiency and productivity is significantly improved through education by increasing their cognitive abilities and skills set pertaining to their various persons. Theodore, Schultz, Gory Bucker and Jacob Mincer posited the concept of citizens engaging in schooling and mixing natural abilities and human investments in order to increase their human abilities (Babalola, 2000). Examples of such expenditures that improve one's value in terms of their human capital include education, work-related preparation, health and nutrition spending. Schultz's described human capital in this manner; "Consider all human abilities to be either innate or acquired. Every person is born with a particular set of genes, which determines his innate ability. Attributes of acquired population quality, which are valuable and can be augmented by appropriate investment, will be treated as human capital."

The worth of human capital rises, however, only when gross investment, with heavy use or lack of use, exceeds depreciation over time. Education is seen as a profitable investment in human capital that the adherents of human capital theory acknowledge as equally important or perhaps of more value in comparison to that of physical capital. Human capital theorists have demonstrated that preparation and investment in their skills raises the potential of low-quality workers. They also provide instruction which entails rational and critical thinking,

which yields technical and specialist expertise, thereby, increasing the marginal productivity of highly skilled staff and specialists. In addition, the greater the provision of the schooling system and thus the higher the national productivity and economic development.

2.3.5 MUSGRAVE AND ROSTOW THEORY OF PUBLIC EXPENDITURE

Musgrave, the economist and Rostow, the economic historian suggested a development model which displays that the pattern of economic growth pertaining to a country might have a relationship with the growth of public spending/ government expenditure in that country. They posited that public spending forms the basis for economic growth and thus, explains how economic transition from traditional economy to an industrialized economy. They assume that a state passes through a series of developmental stages. Investment such as provision of economic infrastructures like roads, electricity, sanitation system and so on are initiated in the first development stage. In the later development stages, the balance of public investment moved beyond infrastructure to human capital development achieved through increase in expenditure on health, education and welfare services which move the economy beyond growth to development (Edame & Eturoma, 2014). According to this theory, government expenditure is an increasing function of the developmental stage of the economy.

2.3.6 THEORETICAL REVIEW SUMMARY

The level of government expenditure on human capital is a deciding factor on its level of development and also its reflection on the economic growth in a given economy. Hence, one can say that government expenditure and human capital development are key determinants of economic growth. This subject matter has under them varying theories. However, these above that have been reviewed out of many discuss human capital

development determinants, as well as government expenditure as a factor and what they contribute as a whole to productivity.

Although all these theories have distinct opinions on how to determine their valued variables, this research focuses on the concept of the endogenous growth theory as it examines not only the contributing factor of government expenditure to human capital development but also the two major component of human capital; education and health, which this study lays emphasis on.

2.4 EMPIRICAL REVIEW

The emergent evidence on the role and relevance of human capital investment through education and health in the development process of an economy for sustained growth and development is increasing in a frightening rate. Education and health at all levels have been identified to be one of the major sources of contribution to the economic growth of any nation. It is of great importance to pinpoint that the significance of the educational system to any labor market would highly depend on its ability to produce a literate, disciplined, flexible labor force vis-à-vis high-quality education. Investing in health offers high return in terms of economic growth. This means that increasing expenditure on health services do not only have a large impact on poverty per naira spent, but also enhance growth in human productivity. This is because as more people obtain good health, they will carry out their duties more efficiently, which yields better productivity and will enhance economic growth.

Globally, in Nigeria as a whole and represented by its constituent states, various studies have been carried out to ascertain the relationship between government expenditure and human capital development and also, its resultant effects on economic growth, either separately or integrated as a whole. These studies are;

Oluwatobi and Oluranti (2011) examined the relationship between human capital development efforts of the government and economic growth in Nigeria. In order to achieve this, they divided investment in human capital into its capital and recurrent components, finding out its impact on education and health in Nigeria and their effect on economic growth. The data used for the study are from secondary sources while the augmented Solow model was also adopted. The result showed that there exists a positive relationship between government recurrent expenditure on human capital development and the level of real output, while capital expenditure showed a negative relationship with the level of real output. An appropriate channeling of the nation's capital expenditure on education and health to promote economic growth is recommended by this study.

Abdullahi (2000), in examining the relationship between government expenditure and economic growth, recommended that government should increase its spending on infrastructure, social and economic activities. In addition, government should offer encouragement and support to the private sector to accelerate economic growth. In addition, the work of Abdullahi (2000), Devajaran, Swaroop, & Zou, (1996) evaluated the relationship between the components of government expenditure and economic growth for a group of developing countries. The regression results demonstrated that capital expenditure has a significant negative relation with the growth of real GDP per capita. However, results showed that contrary to the aforementioned statement, recurrent expenditure is positively related to real GDP per capita, which is mostly consistent of components of human capital such as education and health.

Ayo and Ifechukwu (2012) examined the causal relationship among human capital development, economic growth and government expenditure in Nigerian covering years 1970 – 2001. Based on these findings, the author recommended that government should implement policies that would moderate government spending in order to counter the inflation rate.

Moreover, to compensate for the loss in economic growth through the reduction in government spending, the researchers advised that the lending rate should be moderated so as to encourage private investment in the Nigerian economy.

Chude and Chude (2013) investigated the effects of public expenditure in education on economic growth in Nigeria over a period from 1977 to 2012. Making use of an Error Correction Model (ECM), this study employed an ex-post facto research design and applied a time series econometric technique to examine the long run and short run relationship between the variables in consideration. They concluded that economic growth is clearly impacted by factors both exogenous and endogenous to the public expenditure in Nigeria. They therefore recommended that, there is need for government to reduce its budgetary allocation to recurrent expenditure on education and place more emphasis on the capital expenditures being channeled into productive sectors like education, so as to accelerate economic growth.

Jumare, Yusuf & Mohammed (2014) examined the impact of government expenditure on economic growth in Nigeria. The result explains that government expenditure really does have impact on economic growth but not in a manner that brings about the realization of microeconomic objectives. This is due to the fact that the pattern of government expenditure lays more emphasis on recurrent expenditure than capital expenditure. In cognizance of this notion, the authors recommended that expenditure should be directed on human capital development that will yield positive and continuous economic growth.

Ogedengbe, et al, (2013) examined empirically the impact of health sector on the growth of Nigerian economy using annual time series data from 1970 to 2010. The basic macroeconomic variables used in this study are: real gross domestic product as a proxy for economic growth, total government expenditure on education (TGEXPE), total government expenditure on health (TGEXPH), enrolments into Tertiary School enrolments (TSE), Senior

Secondary School enrolments (SSSE) and Primary School enrolments (PSE) were used as a proxy for human capital development (HCD). A series of tests were carried out in this research; the Augmented Dickey Fuller (ADF) and Phillip Perron (PP) tests to check for their stationarity, including co-integration tests and Granger Causality showing long run and short run relationships of the variables. Empirical results revealed that there indeed exists a long-run relationship between government expenditure on education, government expenditure on health, and human capital development as a proxy for tertiary school enrolments, Secondary school enrolments and Primary school enrolments and economic growth. From the findings, it was revealed that there is a feedback mechanism between human capital development and economic growth.

Lyakurwa (2007) from his analysis, reported that human capital development has the capacity to enlarge people's choices and opportunities, improve healthy living through acquired skills and knowledge and eventually enhance growth in the nation's gross domestic product through increased productivity. According to Lucas (1988), the growth rate of human capital is dependent on the amount of time an individual invests into acquiring skills.

Bakare (2006), in his investigation of the growth implications of human capital investment in Nigeria, by using vector auto-regression and error corrections model, found that there is a significant functional and institutional relationship between the investments in human capital and economic growth in Nigeria. This relationship is such that a 1% fall in human capital investment led to a 48.1% fall in the rate of growth in gross domestic output between 1970 to 2000 that was examined.

Chete and Adeoye (2002), studied the empirical mechanics through which human capital influences economic growth in Nigeria. They attempted to achieve this objectives using vector Auto regression analysis and ordinary least square to capture these influences.

However, they concluded that there is an unanticipated positive impact of human capital on growth via the various Nigeria, governments since the post- independence. This is due to the expansion of educational infrastructure across the country. They are however quick to indicate that the real capital expenditure on education and health have been rather low.

Sankay, Ismail and Shaari (2010) investigated the impact of human capital development on economic growth in Nigeria during the period 1970 to 2008. They made use of aJohansen co-integration technique and vector error correction analysis in order to ascertain this relationship. The basic macroeconomic variables of concern derived from the literature review are: Real gross domestic product (RGDP), real capital expenditure (RCE) on education, real recurrent expenditure (RRE) on education, real capital stock (RCS), total school (SCHE) enrolments and labor force (LF) are used to proxy human capital development. The result indicated that human capital development has a significant impact on Nigeria's economic growth.

Abu and Usman (2010) found in their study on impact of government expenditure on economic growth in Nigeria, using time-series data from 1970-2008 and methods of co-integration and error correction to analyze the relationship between government spending and economic growth. In their findings, a 1% increase in health expenditure in the previous year leads to approximately a 0.06 % increase in economic growth. Therefore, higher government expenditure on health raises people's health status and productivity, thus fostering economic growth.

Cordelia Onyinyechi O. (2019) in her research on Government General Spending and Human Development using Nigeria as a case study from years 2003 to 2017 found that government’s capital expenditure, inflation and corruption have little or no impact on HDI. However, in her studies, results indicate that government’s recurrent expenditure has strong

and significant impact on HDI. In realizing this objective, a multiple linear regression model was used while using an OLS method in analyzing the model. The study concludes that recurrent expenses should be reduced and more money should be invested in capital projects for human capital development in Nigeria.

Torruam J.T. and Abur C.C. (2014) carried out a research on Public Expenditure on Human Capital Development as a Strategy for Economic Growth in Nigeria using an application of a Co Integration and Causality Test Analysis within the periods of 1977 to 2012. The stationarity properties of the data and the order of integration of the data were tested using both the Augmented Dickey-Fuller (ADF) test and the Phillip-Perron (PP) test. The variables tested stationary at first differences. The Johansen approach of co-integration was applied to test for the long-run relationship among the variables. The result indicated three co-integrating relations between the variables; the Granger-causality suggests that there is bidirectional causality running from economic growth to human capital development and from total expenditure on education to total expenditure on health in Nigeria. In their recommendations, they concluded that funds if channeled into education and health sectors would improve the educational and health sectors, given they are properly managed and utilized efficiently.

Enefiok, Obio and Sunday (2014) investigated the impact of human capital development and economic empowerment in Akwa-Ibom State of Nigeria. The descriptive statistics was adopted. The result shows that training and the government empowerment programmed have improved the productivity of labor and this has resultantly increased the development of the state. The focus of the study covers the period between 1980 and 2012. The results using the OLS revealed a positive and significant relationship between the government expenditure on education and health on economic growth in Nigeria.

Similarly, Ifeoma et al(2013) investigated human capital development and economic growth in Nigeria. Adopting the Ordinary Least Square technique, the result showed a strong positive relationship between life expectancy, public expenditure on education and health, stock of physical capital and economic growth in Nigeria.

Sanusi (2012), conducted a study on the impact of public expenditure on human capital development in Kano State between the years of 1990 and 2009. Using an annual Time Series data, these variables were used in this analysis; Recurrent and capital expenditure on education services together with pupils and students gender enrolment, number of teacher/tutors employed, and school building were used as proxies for number of graduates generated in the State as the basis of human capital, using the OLS technique. The result of the study showed insufficient funding and inappropriate expenditure on education services, school buildings were inadequate and not in good shape. Public expenditure is statistically significant in building human capital in the study area, implying that there is an urgent need to increase budgetary allocation to education. The regression result shows that the value of R^2 is 0.8336, this means that about 83% of the variation in human capital development are explained by government expenditure on education.

Obi, Ekesiobi, Dimnwobi, and Mgbemena (2016), using Time Series data over the period of 1970 to 2013, and by testing stationarity and multi-collinearity of the data, used Ordinary Least Square (OLS) to assess the impact of government education spending and education outcome in Nigeria. The result of the study revealed that public spending on education alongside public expenditure on health has a positive and significant effect on education outcome in Nigeria. Although, the latter is not significant in determining education outcomes. The study recommends that government should allocate more expenditure to education. Also, the government should monitor its reckless spending, given the history of corruption and embezzlement of public funds in Nigeria.

2.5 GAPS IN LITERATURE

After reviewing empirical literature on the subject matter, it is evident that in Nigeria analysis, most studies support positive association between human capital and government expenditure. However, it is observed that different studies have used different proxies for human capital and difference in measurement of human capital; this may be a source of bias in their empirical results. Furthermore, it can be concluded that earlier studies have used education as a proxy for human capital and more recent studies lay emphasis on both health and education as a proxy for human capital. The existing literature on Nigeria economy shows that appropriate proxies of human capital are not used along with recent advances in dynamic modeling. There exists a gap in the literature regarding the role of human capital on economic growth in Nigeria.

Also, most studies either study the impact of government expenditure on economic growth or the impact of human capital development on economic growth. However, all these factors are integrated together, showing how government expenditure on human capital translates to economic growth within Nigeria.

The present study is an attempt to bridge this gap by analyzing the causal relationship between government expenditure and human capital using recent advances in dynamic modeling and the key contribution relative to the previous studies is the utilization of longer time series to capture the possible long run relationships and more appropriate proxies for human capital. Also, an attempt to highlight the importance of government expenditure in order to enhance human capital development, of which its resultant effect is evident on the growth of the economy. The results of this study may be helpful for policy makers in

designing appropriate policies giving priority to the development of human capital in the country.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter focuses on the general methodology used in the process of carrying out this research, that is, the procedural plan adopted by the researcher to carry out a study. This

chapter covers the research design, theoretical framework, model specification, data analysis techniques, estimation techniques, sources of data collection and the justification of variables used in this research.

3.2 RESEARCH DESIGN

To achieve the objectives of this study, Ex-post facto design was used by obtaining secondary data from World Development Index (WDI) and Central Bank Statistical Bulletin. This research design was introduced because it observes the dependent variable at occurrence of the independent variable.

The ex-post facto design involves the obtaining of secondary data through articles, annual report, journals etc. It is appropriate because this study utilizes time series data based on the fact that the data used in this analysis has been obtained over a period of time. Also, it is intended to examine the impact of government expenditure on human capital development in Nigeria, while investigating the strength of relationship between the economic factors on which design is based.

3.3 THEORETICAL FRAMEWORK

This research is based off the endogenous theory. Endogenous growth theory highlights the fact that if productivity is to increase, the labor force must continuously be provided with more resources. Resources in this case include physical capital, human capital and knowledge capital (technology). Therefore, growth is driven by accumulation of the factor of production, while accumulation in turn is the result of investment in the private sector. This implies that

the only way a government can affect economic growth, at least in the long run, is via its impact on investment in capital, education and research and development. Reduction of growth in these models occurs when public expenditures deter investments by creating tax wedges beyond those necessary to finance their investments or taking away the incentives to save and accumulate capital (Foister and Henrekson, 1997). Endogenous theories of growth aim to find out how market forces, public policy decisions and solutions affect economic development in particular nations i.e., to understand the causes of varying growth rates between different countries (Todaro and Smith, 2011: 150).

This theory is based off the premise that an increase in how much society saves in the form of human capital, through education and on-the-job training, increases the level of human capital per worker, which results in an increment in productivity per worker. In the long run, it tells us that output per worker, which contributes to economic growth, depends on both how much investment there is in human capital as regards aspects such as education and health, both from the government and private individuals (Oliver Blanchard, 2017). The endogenous growth theory implies that investment in physical capital and in education play roughly similar roles in the determination of the output and growth of a nation. This implies that output per worker in the long run, depends roughly equally on the amount of physical capital and the amount of human capital in the economy. Countries that spend more on education can achieve substantially higher levels of output per worker, similarly, higher levels of economic growth.

Human capital can be accumulated via investment in education and training, health and so on which in the long run translates to economic growth. In this theory, technological progress takes the form of improvements in already existing inputs, that is, labor and capital. Here, growth is determined within the model rather than an exogenous rate of technological progress (David Romer, 2019). Many observers have pointed out the importance of technical

improvements for the economic development of some countries (Dragutinovic et al., 2014). The diffusion of knowledge, innovation, flexibility in production, urban and structural advancement drive productivity growth as well as that of the main output of the high-quality production system. At the same time, both of these processes increase the effectiveness of human capital development by stimulating the development of economies of scale, complex externalities and so on, leading to the growth of production and eventually economic growth in the economy (Vazquez-Barquero, 2002).

3.4 SOURCES OF DATA COLLECTION

In the course of this study, data was accumulated via collection of secondary data in accordance with the information prerequisite of this study. Secondary data are those data which are generated, accumulated or collected by other people for varying purposes and are in written or storage format.

In this study, thorough review of literature, libraries, reports, journals, materials from the internet and elsewhere serve as the main secondary source of data. Data obtained covers a period of thirty-eight years (1981-2019). Data was collected from various sources on the following variables: government expenditure on health, government expenditure on education, human capital index (HCI), life expectancy index (LEI) and GDP among others. The data sources included: Central Bank of Nigeria (CBN) Statistical Bulletin, Penn World table, United Nations Human Development Index report, World Development Indicators (WDI) etc.

Table 3.1: Summary of variables

VAR	DETAILS	SOURCE
SSCER	Secondary school enrollment (% gross enrollment)	M.A Adawo (2011). Has education (human capital) contributed to the economic growth of Nigeria?. *Journal of Economics and International Finance* Vol. 3(1), pp. 46-58, January 2011. (YEARS 1981-2006). WDI (YEARS 2006- 2019)
PSER	Primary school enrollment (% gross enrollment)	M.A Adawo (2011). Has education (human capital) contributed to the economic growth of Nigeria?. *Journal of Economics and International Finance* Vol. 3(1), pp. 46-58, January 2011. (YEARS 1981-2006). WDI (YEARS 2006- 2019)
GRHCI	Growth rate of Human capital index, based on years of schooling and returns to education	PENN WORLD TABLE, EVIEWS 10
RIPC	GNI per caipta (constant LCU)	WDI
GRGDP	Annual growth rate of GDP (%)	WDI
LEI	Life Expectancy Index	United Nations Human Developmement Index report
GVEE	Federal government recurrent expenditure on education ('billion)	2019 STATISTICAL BULLETIN
GVEH	Federal government recurrent expenditure on health ('billion)	2019 STATISTICAL BULLETIN
GRRGDP	Growth rate of Expenditure-side real GDP at chained PPPs (in mil. 2017US$)	PENN WORLD TABLE, EVIEWS 10
FDI	Foreign direct investment, net inflows (% of GDP)	WDI

3.5 DATA ANALYSIS TECHNIQUES

The data collected for this study was analyzed using E-view 10 software. Findings from the study are reported via the inferential statistical method so as to report the result of the hypothesis tested in the study. The Regression analysis of the Auto Regressive Distribution Lag model (ARDL) is the estimation technique that is employed in this study in order to analyze if there is a relationship between government expenditure and human capital development. The research work is carried out using statistical and econometric instruments of multiple regression to aid in data analysis and presentation.

3.6 MODEL SPECIFICATION

Based on extensive literature reviwed, the theoretical framework of this study and the available data in relation to human capital and government expenditure being studied, this study has adapted and modified the model formulated in the work of Elumah Lucas O. & Shobayo Peter B. (2017) which allows for the determination of the impact of government expenditure on human capital development. Hence, the econometric models for this study are specified as:

$$EDU = f \quad (TGE) \qquad (1)$$

$$GRSSCER = a_0 + a_1\ lnGVEH + a_2\ lnGVEE + a_3\ GRHCI + a_4\ lnRIPC + a_5\ GRGDP + u_1 \qquad (2)$$

$$a_1, a_2, a_3, a_4, a_5 > 0$$

Equation 1 is specified as thus in cognizance of objective 1, where GRSSCER is the growth rate in Secondary School Enrollment Rate as a proxy for education (EDU) as specified in equation 1. The variables GVEH and GVEE stand as a proxy for Total Government expenditure alongside the control variables GRHCI, RIPC and GRGDP.

Namely, they are Government Expenditure on Health, Government Expenditure on Education, growth rate of Human Capital Index, Real Income per Capita and Growth Rate of GDP. According to this equation, growth rate in Secondary School Enrollment Rate as a proxy for education depends on Total Government Expenditure as proxied by GVEH, GVEE, GRHCI, RIPC and GRGDP. According to a-priori expectation, each of these variables are expected to have a positive relationship with the growth rate in the level of Secondary School Enrollment.

$$HTH = f \quad (TGE) \tag{3}$$

$$GRLEI = b_0 + b_1\ lnGVEH + b_2\ lnGVEE + b_3\ GRHCI + b_4\ lnRIPC + b_5\ GRGDP + u_2 \tag{4}$$

$$b_1, b_2, b_3, b_4, b_5 > 0$$

Equation 3 is specified as thus in cognizance of objective 2, where GRLEI is the growth rate in Life Expectancy Index as a proxy for health (HTH) as specified in equation 3. The variables GVEH and GVEE stand as a proxy for Total Government expenditure alongside the control variables GRHCI, RIPC and GRGDP. Namely, they are Government Expenditure on Health, Government Expenditure on Education, growth rate in Human Capital Index, Real Income per Capita and Growth Rate of GDP as earlier mentioned. According to this equation, growth rate in Life Expectancy Index as a proxy for health depends on Total Government Expenditure as proxied by GVEH, GVEE, GRHCI, RIPC and GRGDP. According to a-priori expectation, each of these variables are expected to have a positive relationship with growth rate in Life Expectancy Index.

GRGDP= f (GVEH, GVEE, SSCER, PSER, FDI) (5)

$GRGDP = c_0 + c_1\ lnGVEH + c_2\ lnGVEE + c_3\ GRSSCER + c_4\ PSER + c_5\ lnFDI + u_3$ (6)

$$c_1, c_2, c_3, c_{4,} c_5 > 0$$

Equation 5 is specified as thus in cognizance of objective 3, where GRGDP is the growth rate in Gross Domestic Product as a proxy for economic growth. The variables GVEH, GVEE, GRSSCER, PSER and FDI stand as a proxy for Human Capital Development and they are Government Expenditure on Health, Government Expenditure on Education, growth rate in Secondary School Enrollment Rate, Primary School Enrollment Rate and Foreign Direct Investment. According to this equation, GRGDP depends on Human Capital Development as proxied by GVEH, GVEE, GRSSCER, PSER and FDI. According to a-priori expectation, each of these variables are expected to have a positive relationship with growth rate in Gross Domestic Product.

In these specifications, u_1, $u_{2,}$ u_3 are error terms indicating other variables or factors not taken into consideration by these models.

In cognizance of the ARDL estimation technique, the ARDL specifications in order to achieve objectives 1, 2 and 3 are as follows in equations 7, 8 and 9 accordingly:

$$\Delta GRSSCER =$$
$$a_0 + \sum_{i=1}^{a} a_1\, \Delta GRSSCER_{t-i} + \sum_{i=0}^{b} a_2\, \Delta InGVEH_{t-i} + \sum_{i=0}^{c} a_3\, \Delta lNGVEE_{t-i} +$$
$$\sum_{i=0}^{d} a_4\, \Delta GRHCI_{t-i} + \sum_{i=0}^{e} a_5\, \Delta InRIPC_{t-i} + \sum_{i=0}^{e} a_6\, \Delta GRGDP_{t-i} + b_1 GRSSCER_{t-1} +$$
$$b_2 InGVEH_{t-1} + b_3 lNGVEE_{t-1} + b_4 GRHCI_{t-1} + b_5 InRIPC_{t-1} + b_6 GRGDP_{t-1} + \mu_t$$
(7)

$$\Delta GRLEI = a_0 + \sum_{i=1}^{a} a_1 \Delta GRLEI_{t-i} + \sum_{i=0}^{b} a_2 \Delta InGVEH_{t-i} + \sum_{i=0}^{c} a_3 \Delta lNGVEE_{t-i} + \sum_{i=0}^{d} a_4 \Delta GRHCI_{t-i} + \sum_{i=0}^{e} a_5 \Delta InRIPC_{t-i} + \sum_{i=0}^{e} a_6 \Delta GRGDP_{t-i} + b_1 GRLEI_{t-1} + b_2 InGVEH_{t-1} + b_3 lNGVEE_{t-1} + b_4 GRHCI_{t-1} + b_5 InRIPC_{t-1} + b_6 GRGDP_{t-1} + \mu_t \quad (8)$$

$$\Delta GRGDP = a_0 + \sum_{i=1}^{a} a_1 \Delta GRGDP_{t-i} + \sum_{i=0}^{b} a_2 \Delta InGVEH_{t-i} + \sum_{i=0}^{c} a_3 \Delta lNGVEE_{t-i} + \sum_{i=0}^{d} a_4 \Delta GRSSCER_{t-i} + \sum_{i=0}^{e} a_5 \Delta PSER_{t-i} + \sum_{i=0}^{e} a_6 \Delta lNFDI_{t-i} + b_1 GRGDP_{t-1} + b_2 InGVEH_{t-1} + b_3 lNGVEE_{t-1} + b_4 GRSSCER_{t-1} + b_5 PSER_{t-1} + b_6 lNFDI_{t-1} + \mu_t \quad (9)$$

3.7 ESTIMATION TECHNIQUES

The technique adopted for analyzing data is the Auto-regressive Distributed Lag (ARDL) model. The ARDL model is used for providing reliable estimates of the long-run coefficients which are asymptotically normal, it is also efficient for small sample data. Ordinary Least Square (OLS) technique will be used to determine the effect of government expenditure on human capital development in short run and how it translates to economic growth in Nigeria. OLS is chosen because it minimizes the error sum of square and has a number of advantages (BLUE). It is widely used and simple and easy to understand.

3.8 JUSTIFICATION OF VARIABLES

The variables for the analysis were selected based on the date and purposes of the research.

Each section describes the study's dependent and independent variables as follows:

3.8.1 Dependent Variables

The variable includes human capital development and economic growth measure, which is proxy by level of growth in Secondary School Enrollment Rate, growth rate in Life Expectancy Index and growth rate in GDP.

3.8.2 Independent Variables

These variables include the value of government expenditure proxy as Total Government Expenditure on Health, Total Government Expenditure on Education and others. Also, they include value of human capital development proxy as Total Government Expenditure on Health, Primary School Enrolment Rate, Secondary School Enrolment Rate and so on.

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF RESULTS

4.1 INTRODUCTION

This chapter's analysis is split into eight sections which are as follows: A descriptive analysis of the time series data used is presented in section 4.2. Also, results of a correlation analysis between the dependent and independent variables is shown in section 4.3. Furthermore, the results of the unit root test are presented in Section 4.4 of this document. With the VAR lag selection criteria, Section 4.5 shows the lag length of the objectives 1, 2 and 3 as specified in Chapter 3 of which this research abides by. The bound test method is described in detail in Section 4.6, which is used to test for co-integration among the variables. Section 4.7 examines the connection between the variables in each objective throughout the short and long run. Section 4.8 provides a summary of the discussion of the findings, which brings this chapter to a close.

4.2 DESCRIPTIVE ANALYSIS

Based on the results of the descriptive statistical characteristics of the variables included in the research, which are shown in Table 4.1, it is discovered that majority of the variables in this study are platykurtic in nature as their kurtosis value is below 3,

which indicates that the data distribution is thin tailed and flat resulting in fewer extreme positive or negative events, except for GRSSCER, GRGDP, GRRGDP and FDI whose kurtosis values are 14.96705, 4.635269, 4.09356 and 6.07025 respectively. These variables can be described as having a wider shape and fatter tails which indicates greater chances for occurrences of extreme positive or negative events. However, while GRSSCER, LNRIPC, GRRGDP, PSER and FDI exhibit positive skewness, implying these variables exhibited more increasing values over the period under consideration, other variables such as LNGVEH, LNGVEE, GRHCI, GRGDP and GRLEI exhibits negative skewness, implying that these variables show more of decreasing values over the considered period. This implies that government expenditure on health and education, growth in the development of human capital index, real GDP and life expectancy index have experienced a decline over the years under review.

Furthermore, the Jarque-Bera statistic, which is a formal test of normality, shows that most variables are normally distributed as the probability values associated with the Jarque-Bera statistic are not statistically significant at 5%. Also, the mean indicating the average distribution values of GRSSCER, LNGVEH, LNGVEE, GRHCI, LNRIPC, GRGDP, GRLEI, GRRGDP, PSER AND FDI are 0.02, 2.07, 2.87, 0.01, 12.43, 3.15, 0.01, 0.05, 81.40 and 1.55 respectively. The standard deviation quantifies the data set's dispersion from the mean. It may be seen as a measure of dispersion. A high standard deviation number indicates that the data set is more variable as its values are dispersed out over a wider range. As revealed in Table 4.1, the standard deviation values are 0.13, 2.98, 2.80, 0.007, 0.24, 5.47, 0.006, 0.22, 6.05, 1.23 for GRSSCER, LNGVEH, LNGVEE, GRHCI, LNRIPC, GRGDP, GRLEI, GRRGDP, PSER and FDI.

Another descriptive method of analysis employed in this study is the correlation matrix as depicted in table 4.2. The correlation matrix was computed so as to determine

the level of strength of linear relationship, correlation or association between the concerned dependent and independent variables observed in this study across various objectives. As seen in table 4.2, relationship between dependent and independent variables for objective 1 is very weak as correlation values are mostly negative and very far from 1. However, independent variables in objective 2 have a relatively stronger relationship with GRLEI (growth rate of Life Expectancy Index) as most values exceed a 0.5, that is 50% correlation with GRLEI except for LNRIPC (Log of Real Income per Capita) and GRGDP (growth rate of Gross Domestic Product) showing a 9% and 31.56% relationship with GRLEI. Furthermore, concerned variables in objective 3 have a relatively not so strong relationship in comparison to objective two judging from values of correlation relationship as shown in table 4.2 below. Relationship between dependent variable GRGDP (Growth Rate of GDP) and INGVEH (Log of Government Expenditure on Health) is at 46.7% which is below average. This can also be observed amongst other variables.

Table 4.1: Descriptive Statistics

	GRSSCER	INGVEH	INGVEE	GRHCI	LNRIPC	GRGDP	GRLEI	GRRGDP	PSER	FDI
Mean	0.024736	2.07191	2.86997	0.01329	12.4259	3.14993	0.0103	0.05003	81.3985	1.55301
Median	0.020912	2.81181	3.77529	0.01503	12.3335	4.19592	0.0112	0.02379	80.3413	1.15907
Maximum	0.66202	5.96196	6.38575	0.0198	12.8393	15.3292	0.0211	0.70068	94.1185	5.79085
Minimum	-0.188262	-3.21888	-1.8326	0.00241	12.1687	-13.1279	0	-0.43973	69.6699	0.25742
Std. Dev.	0.133245	2.98234	2.79945	0.00662	0.23834	5.46739	0.0061	0.21571	6.05382	1.23353
Skewness	2.80184	-0.35389	-0.492	-0.79497	0.49726	-0.86651	-0.437	0.65214	0.35285	1.73821
Kurtosis	14.96705	1.66756	1.81379	2.09505	1.62524	4.63527	2.2959	4.09356	2.40408	6.07025
Jarque-Bera	276.4682	3.69907	3.85983	5.29921	4.67842	9.22584	1.9967	4.58697	1.38634	34.9568
Probability	0	0.15731	0.14516	0.07068	0.0964	0.00992	0.3685	0.10091	0.49999	0
Sum	0.939962	80.8047	111.929	0.50502	484.61	122.847	0.393	1.90116	3174.54	60.5674
Sum Sq. Dev.	0.656902	337.984	297.803	0.00162	2.1586	1135.91	0.0014	1.72169	1392.65	57.8204
Observations	38	39	39	38	39	39	38	38	39	39

Source: Author's Compilation from Eviews 10

Table 4.2: Correlation Matrix

CORRELATION MATRIX FOR OBJECTIVE ONE						
	GRSSCER	INGVEH	INGVEE	GRHCI	LNRIPC	GRGDP
GRSSCER	1					
INGVEH	-0.036887916	1				
INGVEE	-0.055450111	0.993134201	1			
GRHCI	0.13348183	0.596920558	0.60189884	1		
LNRIPC	-0.022690777	0.80241471	0.76667228	0.15467444	1	
GRGDP	0.004149667	0.375721819	0.40318542	0.32372593	0.1895673	1
CORRELATION MATRIX FOR OBJECTIVE TWO						
	GRLEI	INGVEH	INGVEE	GRHCI	LNRIPC	GRGDP
GRLEI	1					
INGVEH	0.593215908	1				
INGVEE	0.630371747	0.993134201	1			
GRHCI	0.877853807	0.596920558	0.60189884	1		
LNRIPC	0.095785981	0.80241471	0.76667228	0.15467444	1	
GRGDP	0.315630159	0.375721819	0.40318542	0.32372593	0.1895673	1
CORRELATION MATRIX FOR OBJECTIVE THREE						
	GRRGDP	INGVEH	INGVEE	GRSSCER	PSER	INFDI
GRRGDP	1					
INGVEH	0.467093112	1				
INGVEE	0.466151036	0.993134201	1			
GRSSCER	-0.035855568	-0.03688792	-0.0554501	1		
PSER	-0.295118357	0.394906638	0.3717405	0.27368928	1	
INFDI	0.315579457	0.301851179	0.33805976	0.16955306	-0.1651893	1
Source: Author's Compilation from Eviews 10 (2021)						

4.3 UNIT ROOT TEST RESULTS

This study intends to use the ARDL technique in its analysis between the dependent and independent variables employed in this study. A constraint of this method of estimation is that all variables must be integrated of an order less than that of two, that is, I(2). In order to make sure of the satisfaction of this condition, this study applied the unit root test technique to examine the time series of the concerned variables. This was done making use of both the Augmented Dickey-Fuller test (ADF) and the Philip-Perron test (PP). This is significant as majority of macroeconomic time series exhibit non-stationary behavior, which may lead to erroneous conclusions when proper precautions are not applied. The ADF and PP results are given in tables 4.3 and 4.4 respectively. In deciding the stationarity of these variables, a close look is taken at their individual critical values at 5% (decision criteria) and their ADF/PP statistic values. If the value of the ADF/PP statistic exceeds that of the 5% critical value, such a variable is stationary at that point. This can also be decided when the probability value of each variable is less than 0.05. The ADF results show that a majority of the variables used in this study were not stationary at level form, that is, I(0), with both intercept only and intercept and trend. One of the few variables that were stationary at level in these cases include lnFDI (log of Foreign Direct Investment) and GRRGDP (Growth Rate of Real GDP) at intercept only, whereas GRGDP (Growth Rate of GDP) and GRSSCER (Growth Rate of Secondary School Enrollment Rate) were stationary at level, that is they are integrated of order zero I(0), at both intercept only and intercept and trend as shown in table 4.3. This resulted in the application of the first different test of which the rest of the variables were stationary at, that is, I(1). Likewise, in the PP test, majority of the variables were not stationary at level, except a few which are the same variables as mentioned above in the case of the ADF test, except lnGVEH (log of Government Expenditure on Health) which was stationary at both level and first difference using both intercept and trend as shown in table 4.4. Also,

GRLEI (Growth rate of Life Expectancy Index) which is stationary at level with intercept only, hence the need to apply first difference at which majority were integrated of order one, that is, I(1). In observing tables 4.3 and 4.4, all variables satisfy the condition of being stationary at an order of integration of zero or one, that is I(0) or I(1), hence they are feasible for analysis using the ARDL technique.

Table 4.3: Result of the Augmented Dickey-Fuller (ADF) test

ADF Test (intercept only)												
Variable	Level						First difference					
	PP Statistic	Critical values			Prob.	Remarks	PP Statistic	Critical Values			Prob.	Remarks
		1%	*5%	10%				1%	*5%	10%		
InFDI	-3.2683	-3.615588	-2.941145	-2.609066	0.0236	I(0)	-9.5348	-3.621023	-2.943427	-2.610263	0.0000	I(1)
GRRGDP	-3.1906	-3.621023	-2.943427	-2.610263	0.0286	I(0)	-8.9858	-3.626784	-2.945842	-2.611531	0.0000	I(1)
InGVEE	-2.1661	-3.639407	-2.951125	-2.6143	0.2217	NS	-7.7825	-3.621023	-2.943427	-2.610263	0.0000	I(1)
InGVEH	-1.5447	-3.639407	-2.951125	-2.6143	0.4992	NS	-10.112	-3.621023	-2.943427	-2.610263	0.0000	I(1)
GRHCI	-1.8253	-3.621023	-2.943427	-2.610263	0.3629	NS	-5.8575	-3.626784	-2.945842	-2.611531	0.0000	I(1)
InRIPC	-0.962	-3.626784	-2.945842	-2.611531	0.7562	NS	-4.222	-3.621023	-2.943427	-2.610263	0.002	I(1)
GRLEI	-3.3764	-3.646342	-2.954021	-2.615817	0.0192	I(0)	-2.0013	-3.6329	-2.948404	-2.612874	0.285	NS
GRGDP	-4.158	-3.615588	-2.941145	-2.609066	0.0024	I(0)	-10.077	-3.621023	-2.943427	-2.610263	0.0000	I(1)
PSER	-2.1999	-3.615588	-2.941145	-2.609066	0.2096	NS	-7.6334	-3.621023	-2.943427	-2.610263	0.0000	I(1)
GRSSCER	-5.3145	-3.621023	-2.943427	-2.610263	0.0001	I(0)	-11.22	-3.626784	-2.945842	-2.611531	0.0000	I(1)

ADF Test (Intercept and Trend)												
Variable	Level						First difference					
	PP statistic	Critical values			Prob.	Remarks	PP statistic	Critical values			Prob.	Remarks
		1%	*5%	10%				1%	*5%	10%		
InFDI	-3.1234	-4.219126	-3.533083	-3.198312	0.1156	NS	-9.7518	-4.226815	-3.536601	-3.20032	0.0000	I(1)
GRRGDP	-3.2517	-4.226815	-3.536601	-3.20032	0.0904	NS	-8.9279	-4.234972	-3.540328	-3.202445	0.0000	I(1)
InGVEE	-3.0949	-4.219126	-3.533083	-3.198312	0.122	NS	-5.8356	-4.252879	-3.54849	-3.207094	0.0002	I(1)
InGVEH	-0.0273	-4.252879	-3.54849	-3.207094	0.9941	NS	-5.3782	-4.252879	-3.54849	-3.207094	0.0006	I(1)
GRHCI	-1.3518	-4.226815	-3.536601	-3.20032	0.8585	NS	-6.0599	-4.234972	-3.540328	-3.202445	0.0001	I(1)
InRIPC	-1.4942	-4.234972	-3.540328	-3.202445	0.8131	NS	-4.1497	-4.226815	-3.536601	-3.20032	0.0121	I(1)
GRLEI	-2.9397	-4.262735	-3.552973	-3.209642	0.1638	NS	-3.5443	-4.243644	-2.362794	-3.204699	0.0032	I(1)
GRGDP	-3.9822	-4.219126	-3.533083	-3.198312	0.0179	I(0)	-10.314	-4.226815	-3.536601	-3.20032	0.0000	I(1)
PSER	-2.7771	-4.219126	-3.533083	-3.198312	0.2140	NS	-7.6055	-4.226815	-3.536601	-3.20032	0.0000	I(1)
GRSSCER	-5.2606	-4.226815	-3.536601	-3.20032	0.0007	I(0)	-11.064	-4.234972	-3.540328	-3.202445	0.0000	I(1)

Source: Author's Compilation from Eviews 10 (2021)

Table 4.4: Result of the Phillip-Perron (PP) Test

Phillip perron Test (intercept only)												
Variable	Level						First difference					
	P-Value	Critical values			Prob.	Remarks	P-Value	Critical Values			Prob.	Remarks
		1%	*5%	10%				1%	*5%	10%		
InFDI	-3.111297	-3.615588	-2.941145	-2.609066	0.0341	I(0)	-10.106	-3.621023	-2.943427	-2.610263	0.0000	I(1)
GRRGDP	-3.141472	-3.621023	-2.943427	-2.610263	0.032	I(0)	-11.393	-3.626784	-2.945842	-2.611531	0.0000	I(1)
InGVEE	-1.25384	-3.615588	-2.941145	-2.609066	0.6407	NS	-10.742	-3.621023	-2.943427	-2.610263	0.0000	I(1)
InGVEH	-0.863801	-3.615588	-2.941145	-2.609066	0.7888	NS	-19.121	-3.621023	-2.943427	-2.610263	0.0001	I(1)
GRHCI	-1.825312	-3.621023	-2.943427	-2.610263	0.3629	NS	-5.8575	-3.626784	-2.945842	-2.611531	0.0000	I(1)
InRIPC	-0.446257	-3.615588	-2.941145	-2.609066	0.8907	NS	-4.1302	-3.621023	-2.943427	-2.610263	0.0026	I(1)
GRLEI	-1.785656	-3.621023	-2.943427	-2.610263	0.3815	NS	-6.1349	-3.626784	-2.945842	-2.611531	0.0000	I(1)
GRGDP	-4.172091	-3.615588	-2.941145	-2.609066	0.0023	I(0)	-10.407	-3.621023	-2.943427	-2.610263	0.0000	I(1)
PSER	-2.098567	-3.615588	-2.941145	-2.609066	0.2463	NS	-8.5306	-3.621023	-2.943427	-2.610263	0.0000	I(1)
GRSSCER	-5.403178	-3.621023	-2.943427	-2.610263	0.0001	I(0)	-15.23	-3.626784	-2.945842	-2.611531	0.0000	I(1)

Phillip perron Test (Intercept and Trend)												
Variable	Level						First difference					
	P-Value	Critical values			Prob.	Remarks	P-Value	Critical values			Prob.	Remarks
		1%	*5%	10%				1%	*5%	10%		
InFDI	-2.928856	-4.219126	-3.533083	-3.198312	0.1653	NS	-19.255	-4.226815	-3.536601	-3.20032	0.0000	I(1)
GRRGDP	-3.259636	-4.226815	-3.536601	-3.20032	0.0889	NS	-15.065	-4.234972	-3.540328	-3.202445	0.0000	I(1)
InGVEE	-3.043335	-4.219126	-3.533083	-3.198312	0.1344	NS	-14.542	-4.226815	-3.536601	-3.20032	0.0000	I(1)
InGVEH	-3.769876	-4.219126	-3.533083	-3.198312	0.0294	I(0)	-21.263	-4.226815	-3.536601	-3.20032	0.0000	I(1)
GRHCI	-1.351796	-4.226815	-3.536601	-3.20032	0.8585	NS	-6.0712	-4.234972	-3.540328	-3.202445	0.0001	I(1)
InRIPC	-3.096506	-4.219126	-3.533083	-3.198312	0.1216	NS	-4.0486	-4.226815	-3.536601	-3.20032	0.0155	I(1)
GRLEI	-1.116516	-4.226815	-3.536601	-3.20032	0.9125	NS	-6.4073	-4.234972	-3.540328	-3.202445	0.0000	I(1)
GRGDP	-3.982154	-4.219126	-3.533083	-3.198312	0.0179	I(0)	-12.113	-4.226815	-3.536601	-3.20032	0.0000	I(1)
PSER	-2.6803	-4.219126	-3.533083	-3.198312	0.2499	NS	-10.222	-4.226815	-3.536601	-3.20032	0.0000	I(1)
GRSSCER	-5.360259	-4.226815	-3.536601	-3.20032	0.0005	I(0)	-15.211	-4.234972	-3.540328	-3.202445	0.0000	I(1)

Source: Author's Compilation from Eviews 10 (2021)

4.4 VAR LAG ORDER SELECTION CRITERIA

The appropriate lag length must be determined after the stationary conditions of the variables employed have been determined before the evaluation of the specified ARDL equations. As seen in table 4.5, the maximum number of lags has been limited to a number of two so as not to allow this model consume degrees of freedom, resulting in statistical inference being somewhat unpredictable, hence increasing the likelihood of multi-collinearity occurring, that is, inflating the values of the standard errors in relation to estimated coefficients. As recommended by the literature, the VAR lag order selection criteria ascribed to the Log Likelihood (LL), the Final Prediction Error (FPE), the Akaike Information Criteria (AIC), the Schwarz Information Criteria (SC) and the Hannan-Quinn Information Criteria (HQ) were taken into account. The results of the recommended optimal lag length structure for each specific objective in this study is shown in table 4.5 for objectives 1, 2 and 3 respectively. As shown in table 4.5, most VAR lag order selection criteria recommended an optimal lag length of order 2 for objective 1, except for the Schwarz Information Criteria (SC). By means of democracy, objective one would make use of the lag length recommendation with the highest number of votes. Also, as shown in table 4.5, by order of a majority system, a lag length of order 2 was selected for objective 2. Likewise, in table 4.5, by means of democracy, the optimal lag length selection is a lag length of order 1 as recommended by all VAR lag order selection criteria for objective 3.

Table 4.5: Results for Optimal VAR Lag Selection

LAG LENGTH CRITERIA SELECTION FOR OBJECTIVE ONE						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	2.21903	NA	4.97E-08	0.210054	0.473973	0.302169
1	162.821	258.7469	5.05E-11	-6.712253	-4.864814*	-6.067447
2	216.795	68.96687*	2.21e-11*	-7.710812*	-4.279855	-6.513316*
LAG LENGTH CRITERIA SELECTION FOR OBJECTIVE TWO						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	67.2464	NA	1.34E-09	-3.402578	-3.138658	-3.310463
1	336.42	433.6684	3.27E-15	-16.35666	-14.50922*	-15.71185
2	389.838	68.25593*	1.48e-15*	-17.32431*	-13.89335	-16.12681*
LAG LENGTH CRITERIA SELECTION FOR OBJECTIVE THREE						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	-739.56	NA	20459201	31.0233	31.21822	31.09696
1	-582.02	275.6894*	82299.26*	25.50093*	26.67043*	25.94289*
2	-560.1	33.79079	96894.54	25.62933	27.77342	26.43959

Source: Author's Compilation using Eviews 10 (2021)

4.5 BOUND TEST APPROACH TO CO-INTEGRATION

Co-integration testing is a crucial stage in determining whether or not a model empirically shows significant long run connections. The Autoregressive Distributed Lag co integration method is utilized in this case because it may be used regardless of whether the underlying variables are I(0), I(1) or a mix of both. Following the determination of the optimum lag length, the next step is to establish the co-integration relationship between the variables in the model. In order to establish the co-integration connection among the variables, the bound F-statistics is used. In cognizance of the restrictions imposed by the Wald test F-statistics, Pesaran and Shin (1999) proposed two essential values for consideration, these are the lower bound I(0) and the upper bound I(1). The decision criteria of determining if a long run relationship exists between the variables involved is as thus; if the calculated F-statistic is lower than the lower bound, that is, I(0), there exists no long run connection between the concerned variables, if the calculated F-statistic falls between the values of the lower bound and the higher bound, that is the I(0) and the I(1), it becomes inconclusive if there exists a long run relationship or not, however, if the computed F-statistic is of a value higher than the higher bound, that is I(1), then there exists a long run relationship between the concerned variables.

The results of the bound test for objectives 1, 2 and 3 respectively can be seen below in table 4.6. Concerning objective 1, at a level of significance of 5%, the computed F-statistic (3.958) is greater than the upper bound value of 3.38, which indicates that the research rejects the null hypothesis of no long run connection among the investigated variables in the concerned objective. Similarly, at a 5% level of significance, the F-statistic value for objective 2 (4.589) is greater than its upper bound value (3.38) indicating the existence of a long run relationship. A similar result is obtained for

objective three as the F-statistic (3.56) exceeds the higher bound (3.38). This empirical data completely eliminates the chance that the calculated connection is incorrect. This research acknowledges that there is co-integration, which implies a long run relationship between the concerned variables in this study

Table 4.6: Results of Bound Test Approach to Co-integration

Results of Bound Test Approach to Co-Integration for Objective One			
Significance	Critical value Bonds		Computed F-statistics
	Lower Bound I(0)	Higher Bound I(1)	
10%	2.08	3	
5%	2.39	3.38	**3.958103**
2.50%	2.7	3.73	
1%	3.06	4.15	
Results of Bound Test Approach to Co-Integration for Objective Two			
Significance	Critical value Bonds		Computed F-statistics
	Lower Bound I(0)	Higher Bound I(1)	
10%	2.08	3	
5%	2.39	3.38	**4.589855**
2.50%	2.7	3.73	
1%	3.06	4.15	
Results of Bound Test Approach to Co-Integration for Objective three			
Significance	Critical value Bonds		Computed F-statistics
	Lower Bound I(0)	Higher Bound I(1)	
10%	2.08	3	
5%	2.39	3.38	**3.561103**
2.50%	2.7	3.73	
1%	3.06	4.15	

Source: Author's Compilation using Eviews 10 (2021)

4.6 EMPIRICAL RESULTS ON THE LONG RUN AND SHORT RUN EFFECTS

As the existence of the long run equilibrium has been ascertained via the co-integration bound tests, the long run coefficient elasticities as well as the short run coefficient elasticities are being calculated. The estimated long run and short run dynamics of the ARDL models in specification to objective 1 are shown in tables 4.7 and 4.10 respectively, as well as the determined long run and short run dynamics and coefficients of the ARDL models in specification to objective 2 are shown in tables 4.8 and 4.11 respectively. Also, tables 4.9 and 4.12 show the long run coefficient and short run dynamics for ARDL models in specification to objective 3.

4.6.1 EMPIRICAL RESULTS ON THE LONG RUN EFFECTS

The result of the long run effects of the concerned variables in objective 1 are shown in table 4.7. According to these results, the long run equilibrium relationship between government expenditure on health and income per capita is positive as shown by their coefficient values of 0.1898 and 0.148 respectively, however, the relationship between these variables and an increase in the quality of the education sector is not statistically significant as shown by their individual t-statistic values of 1.44 and 0.41 whose values are lesser than 1.5 and their probability values being greater than 0.05, which is the decision criteria at a 5% level of significance. Although these values are statistically insignificant, the coefficient of these variables indicate that a 1% increase in government expenditure on health or income per capita holding all other things constant would lead to a 18.98% and 14.8% increase in the education sector respectively. An increase in the human capital index, indicating an upward trend in human capital development by its coefficient value of 13.168 shows a positive relationship between HCI and educational

development. This indication is fairly significant as its t-statistic value (1.6) exceeds 1.5, however, its probability value at 0.12 exceeds 0.05. More so, other variables such as the GRGDP indicating a growth rate in GDP and government expenditure on education shows a negative relationship with development in the education sector as proxied by SSCER. This finding is in line with the work of Abu and Abdullah (2010) as well as Maku (2009) which states that government expenditure has no substantial impact on growth. Hence, a unit increase in the level of growth of the GDP as well as the government's expenditure on education will bring about a -0.00108% as well as a -0.24% decrease in the level of development educationally, which goes against the a-priori expectation. This can be attributed to the misappropriation of funds, corruption and embezzlement prevalent in Nigeria.

Furthermore, selected measures of the goodness of fit of objective 1 model specification is shown in table 4.7, namely, the R-Squared, the adjusted R-Squared, the F-statistic and the Durbin-Watson. As shown in table 4.7 below, the extent to which the independent variables explain education as proxied by SSCER is low as it falls below 50%, the value of the R-Squared stands at 0.42, indicating that only 42% of the dependent variable is explained by the regressors. This is also shown by the Adjusted R-Squared whose value is 0.092, indicating the proportion of variation in educational development measured by the growth in Secondary School Enrollment rate that is jointly explained by the explanatory variables after the effect of the insignificant repressor has been removed is about 9.2%. Also, the Durbin-Watson statistic value at 2.033 shows close to no auto correlation as its value is approximately 2. This indicates that the occurrences in the education sector in previous years has no effect on its developmental progression today.

The results of the long run effect of objective 2 is presented in table 4.8, an examination of this result shows that government expenditure on education, real income per capita, and the growth rate of the HCI have a positive relationship with the health sector as proxied by the growth in Life Expectancy Index. As shown in table 4.8, a 1% increase in government expenditure on education will lead to a 1.1% increase in the growth rate of life expectancy index, this conclusion is statistically significant as t-statistic (2.78) exceed 1.5 and the value of the probability (0.01) exceeds 0.05. Also, an 1% increase in real income per capita and growth rate of HCI will lead to a 13.1% and 113% increase in health respectively, corresponding to it's a-priori expectation. However, these conclusions are statistically insignificant as shown by the values of their individual t-statistics and probabilities which are less than 1.5 and greater than 0.05 respectively except for the growth rate of HCI as given by its t-statistic (3.25) and p-value (0.03).

Furthermore, it can be seen that government expenditure on health, like in the case of the education sector and government expenditure on the education sector, have a negative relationship as shown by its coefficient of value -0.014. A 1% increase in government expenditure on health decreases the growth rate of the life expectancy index by 1.4%, which does not conform to the earlier stated a-priori expectation in Chapter 3. This can be attributed to the same reasons as mentioned earlier in the case of the education sector. However, this is not statistically significant as shown by the t-statistic value (-1.615) and p-value (0.1206). In consideration of the measures of goodness of fit, model specification for objective 2 is of a good nature as R-squared value is at 0.9679 showing that this regression model captures 96.79% of its dependent variable, this goodness of fit is also shown by the adjusted R-squared (0.95). The Durbin-Watson statistic which is an indicator of autocorrelation in the residuals emerging from a regression analysis shows that there a slight negative auto correlation as 2.187 is slightly above the value of 2 which

indicates no auto correlation. This shows that even if development in the health sector fell yesterday, it might still rise today, however, by a slight margin as indicated by the Durbin Watson statistic. Also, the F-statistic which measure the overall significance of the estimated model is significant at 60.25 at a p value of 0.00.

In like manner, the results of the long run relationship of objective 3 is depicted in table 4.9. An analysis of this result shows that all variables indicating human capital development have a positive relationship with economic growth except for primary school enrollment rate and foreign direct investment. As shown in table 4.9 a 1% increase in FDI will lead to a 4.3% decrease in economic growth, ceteris paribus, which goes against a-priori expectation. This can be attributed to some reasons such as capital flight, exploitation by foreign countries etc. However, this conclusion is not statistically significant as shown by the t-statistic (-0.72<1.5) and the p-value (0.475>0.05). Similarly, a negative relationship exists between PSER and economic growth, here, a 1% increase in primary school enrollment rate will lead to a 2.4% decrease in the growth rate of the GDP, all other factors being held constant. This can be due to the fact that after primary school, majority of the citizens do not have the financial capability to further their studies, as Nigeria is largely a poverty ridden country. Also, the inability of the government to provide public educational facilities. This finding goes against a-priori expectation and is slightly statistically significant as shown by the p-value (-3.88<1.5) and the t-statistic (0.0005<0.05).

In regards to variables which have a positive relationship with the level of growth of the economy, a 1% increase in the level of government expenditure on health or education sector will lead to a 5.96% or a 0.0757% increase in the level of growth of the GDP, ceteris paribus. This level of change, although small, indicates that government

expenditure on these sectors do not possess a significant impact on the level of economic growth as shown by their individual t-statistic (educational expenditure-0.0068<1.5, health expenditure- 0.585<1.5) and p-values (educational expenditure- 0.99>0.05, health expenditure- 0.56>0.05). This further approves the findings in long run analysis of objectives 1 and 2 in relation to these variables as the expenditures by government on these individual sectors have no significant effect on them. Also, the relationship between the growth rate in the level of secondary school enrollment rate and the level of economic growth is a positive one. As shown in table 4.9, a 1% increase in growth level of gross enrollment in secondary schools lead to a 33.05% increase in the level of economic growth, all other things being equal. However, this conclusion is not statistically significant as shown by its t-statistic and probability values as shown in table 4.9. In consideration of the measures of goodness of fit, the variables employed in the regression model for objective 3 are a fairly good representation of the variations is economic growth as the R-squared value stands at 0.53, which is 53%>50%. However, judging based off the adjusted R-squared value of 0.42 it is not exactly a good representation. By value of the Durbin-Watson statistic (2.156) this model has the presence of a negative auto correlation by a slight value of 0.156. The level of impact that each individual variable in objective 3 have on the level of economic growth whether positive or negative can be seen in table 4.9 as specified by the EC equation. This is the same for all variables employed in objectives 1 and 2.

Table 4.7: Estimated Long Run Dynamics Test Results for Objective One

LONG RUN FOR OBJECTIVE ONE				
Panel A: Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
INGVEH	0.189774	0.131743	1.440486	0.1632
INGVEE	-0.240028	0.127357	-1.884679	0.0722
GRHCI	13.16831	8.188552	1.608137	0.1214
LNRIPC	0.148111	0.359523	0.411966	0.6842
GRGDP	-1.08E-02	0.025195	-0.429097	0.6718
C	-1.666832	4.561652	-0.365401	0.7182
Panel B: Goodness-of-fit Measures				
R^2			0.420114	
Adjusted R^2			0.092353	
F-statistic			1.281769	
Prob(F-statistic)			0.2913	
Durbin-Watson stat			2.033039	
EC = GRSSCER - (0.1898*INGVEH -0.2400*INGVEE + 13.1683*GRHCI + 0.1481*LNRIPC -0.0108*GRGDP -1.6668)				

Source: Author's Compilation from Eviews 10 (2021)

Table 4.8: Estimated Long Run Dynamics Test Results for Objective Two

LONG RUN FOR OBJECTIVE TWO				
Panel A: Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
INGVEH	-0.011558	0.005017	-2.303701	0.0302
INGVEE	0.01077	0.003879	2.776628	0.0105
GRHCI	1.133119	0.348256	3.253693	0.0034
LNRIPC	0.013147	0.014688	0.895049	0.3796
GRGDP	-3.87E-04	0.000601	-0.644213	0.5255
C	-0.173031	0.186476	-0.927898	0.3627
Panel B: Goodness-of-fit Measures				
R^2			0.967871	
Adjusted R^2			0.951806	
F-statistic			60.24892	
Prob(F-statistic)			0.0000	
Durbin-Watson stat			2.187292	
EC = GRLEI - (-0.0116*INGVEH + 0.0108*INGVEE + 1.1331*GRHCI + 0.0131 *LNRIPC -0.0004*GRGDP -0.1730)				

Source: Author's Compilation from Eviews 10 (2021)

Table 4.9: Estimated Long Run Dynamics Test Results for Objective Three

LONG RUN FOR OBJECTIVE THREE				
Panel A: Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
INGVEH	0.059576	0.101726	0.585656	0.5626
INGVEE	0.000757	0.111606	0.00678	0.9946
GRSSCER	0.330585	0.262275	1.260452	0.2176
PSER	-0.024076	0.0062	-3.883546	0.0005
INFDI	-0.043698	0.060424	-0.723184	0.4754
C	1.873293	0.497904	3.76236	0.0008
Panel B: Goodness-of-fit Measures				
R^2			0.533676	
Adjusted R^2			0.421115	
F-statistic			4.741217	
Prob(F-statistic)			0.001203	
Durbin-Watson stat			2.156117	
EC = GRRGDP - (0.0596*INGVEH + 0.0008*INGVEE + 0.3306*GRSSCER -0.0241*PSER -0.0437*INFDI + 1.8733)				

Source: Author's Compilation from Eviews 10 (2021)

4.6.2 EMPIRICAL RESULTS ON THE SHORT RUN EFFECTS

On the basis of the EC equations associated with each long run relationship across objectives 1, 2 and 3, the short run dynamic coefficients associated with the long run connections are calculated as shown in tables 4.10, 4.11 and 4.12. In analyzing the short run dynamics, the signs associated with long run impacts are maintained to a significant level in the short run. The estimated coefficient for the error correction term shows the speed of adjustment from short run imbalances into long run equilibrium. It shows how fast the variables adjust to correct imbalances in the growth situation, whereas, the estimated coefficients reveal the short run effects of changes in the explanatory variables on variations in the dependent variables, in cognizance of their respective optimum lag lengths. These results are in support of the notion that Nigeria operates under an automated mechanism that reacts to departures from equilibrium in a balanced way, as shown by findings.

As shown in table 4.10, for the short run dynamics as regards objective 1 shows an ECT value of (-0.757) which indicates that a rapid speed of adjustment approach of about 75.7% is being used. This means that roughly 76% of variations in the previous years is adjusted for the current year, that is, only about 76% of the disequilibria from the previous years' shocks settle back to the long run equilibrium in the current year. This conclusion is statistically significant as the value of the Error Correction Term is negative and its associated p-value (0.04) is lesser than 0.05, that is the 5% decision criteria. Also, given its t-statistic value of -2.14, we can say this value is significant. The statistical significance of coefficients for each variable in the short run showing its degree of impact on the

education sector is similar to that of the long run as their individual t-statistic values are mostly less than 1.5, also, their p-values are higher than 0.05. This is the case for most variables except for the log of real income per capita (LNRIPC) of lag one with p-value (2.078) and t-statistic (0.05) which satisfies both criterion. Government expenditure on health (0.159) and education (0.1045) of lags 2 and 1 respectively are seen to have a positive impact on the education sector as depicted in table 4.10. Also, growth rate of HCI of lag 1 (1.16) and Real Income per Capita of lag 1 (2.097) also have a positive impact on the education sector in the short run, all others are seen to have a negative impact on the education sector. As opposed to the long run, the ARDL specification for the long run as regards objective 1 is of a good fit as shown by the R-squared (0.68). This is because it is higher than the threshold of 50%, it is considered to be a good fit. After having removed the effect of the explanatory variables, the model barely commendable of about 47.49% as shown by the adjusted R-squared (0.4749). The short run model for objective one as shown in table 4.10 as shown by the Durbin-Watson statistic (2.13) is slightly above 2 by a value of 0.13 which shows it possesses a very slight negative autocorrelation.

Likewise, in the assessment of the short run effects of the ARDL model in specification to objective 2 as shown in table 4.11, the coefficient of the Error Correction Term for the estimated equation is both statistically significant at a 5% decision criteria with a p-value (0.029<0.05) and t-statistic of (-2.337), also it is negative. The speed of adjustment indicated by the ECT(-0.373) suggests that discrepancies from the short run to the long run is corrected by 37.3% per each year, that is roughly 37% of the disequilibria in the short run settles back to the long run equilibrium in the current year. In consideration of a lag length order of 2, the growth rate of the HCI in the previous and preceding years have a positive effect on the health sector as shown in table 4.11 by their individual coefficient values of (GRHCI(-1); 0.018) and (GRHCI(-2); 0.09), however,

this inference is not statistically significant as indicated by their t-statistic values and p-values in table 4.11. As shown by coefficient values of GRLEI(-1); 0.088 and GRLEI(-2); 0.482 which is a proxy for the health sector indicating growth in the life expectancy index, shows that development in the health sector in the previous and preceding years have a positive impact on current year development, although to a varying degree. However, this inference is only statistically significant in the preceding year as shown by t-statistic (2.49>1.5) and p-value (0.02<0.05). The ARDL short run specification for objective 2, although not as fit as that of the long run is considered a good fit as given by the R-squared value of 0.65, indicating that 65% of variation in dependent variables is explained by the model. However, this is not the case in consideration of the adjusted R-squared value (0.438). The Durbin-Watson statistic (2.5094>2) shows the presence of a negative autocorrelation which is the same as in the long run dynamics for objective 2, however, to a greater degree.

In assessing the short run dynamics for objective 3 obtained from the estimated coefficients of the levelled and first-differenced variables in the ARDL model as presented in table 4.12, the Error Correction Term is seen to have a negative coefficient value of -0.432, a p-value of 0.05 and a t-statistic value of -2-033 which indicates its statistical significance at a 5% level of significance. The speed of adjustment suggests that discrepancies in the short run adjusts to the long run equilibrium at a rate of 43.21% per each year, that is, if a system is subjected to a short run shock, the system has the ability to recover roughly about 43% of its equilibrium level from the previous year. The statistical significance of the short run dynamics is similar to that of the long run as they are largely statistically insignificant as their individual t-statistic<1.5 and p-values>0.05 at a 5% level of significance. However, the growth rate of the GDP in previous years, the level of government expenditure on health in previous years, the growth rate of

secondary school enrollment in previous years, primary school enrollment in previous years, and foreign direct investment in previous years all have a negative effect to varying degrees on economic growth in the short run. A 1% increase in the growth level of real GDP in previous years will lead to a 17.5% fall in the level of economic growth, ceteris paribus, likewise, a 1% decrease in government expenditure on health in previous years will bring about a 1.9% increase in economic growth. In the same manner, a 1% increase in foreign direct investment will bring about a 4.0% decrease in the level of economic growth, all other factors being held constant. However, these relationships go against a-priori expectations. In contrast to this, a 1% increase in government expenditure on education in the previous year will bring about a 2.3% increase in economic growth as proxied by GRRGDP in accordance with a-priori expectation, although not statistically significant. The ARDL model specification for the short run in regards to objective 3 in contrast to that of its long run specification, is not a good fit as shown by the R-squared statistic (0.308). this shows that only about 31% of the variations in economic growth is explained by the short run model. This is further corroborated by the value of the adjusted R-squared (0.1359). The Durbin-Watson statistic (2.097) shows the presence of a slight negative autocorrelation in this model. The F-statistic (1.786) and the prob(F-statistic) (0.1297) further shows that the independent variables are insignificant determinants of variations in economic growth at 5% level of significance.

Table 4.10 Estimated Short Run Dynamics Test Results for Objective One

SHORT RUN FOR OBJECTIVE ONE				
Panel A: Short Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.044269	0.03168	-1.397377	0.1769
D(GRSSCER(-1))	-0.107056	0.305079	-0.350912	0.7291
D(GRSSCER(-2))	-0.099085	0.222647	-0.445033	0.6608
D(INGVEH(-1))	-0.05315	0.101636	-0.522946	0.6065
D(INGVEH(-2))	0.158601	0.093495	1.696364	0.1046
D(INGVEE(-1))	0.104511	0.10265	1.018129	0.3202
D(INGVEE(-2))	-1.21E-01	0.093768	-1.288204	0.2117
D(GRHCI(-1))	6.162977	12.8889	0.478162	0.6375
D(GRHCI(-2))	-6.158981	11.59977	-0.530957	0.601
D(LNRIPC(-1))	2.097027	1.009007	2.078308	0.0501
D(LNRIPC(-2))	-0.841042	1.02536	-0.820241	0.4213
D(GRGDP(-1))	-0.010238	0.010203	-1.00346	0.3271
D(GRGDP(-2))	-0.003226	0.00689	-0.468258	0.6444
ECT(-1)	-0.757027	0.353711	-2.140242	0.0442
Panel B: Goodness-of-fit Measures				
R^2			0.675647	
Adjusted R^2			0.474857	
Sum squared resid			3.795E-01	
Durbin-Watson stat			2.132877	
Source: Author's Compilation from Eviews 10 (2021)				

Table 4.11 Estimated Short Run Dynamics Test Results for Objective Two

SHORT RUN FOR OBJECTIVE TWO				
Panel A: Short Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000269	0.000316	0.851078	0.4043
D(GRLEI(-1))	0.088223	0.185379	0.475909	0.6391
D(GRLEI(-2))	0.482193	0.193401	2.493233	0.0211
D(INGVEH(-1))	-0.000176	0.001215	-0.145038	0.8861
D(INGVEH(-2))	0.000119	0.000976	0.121652	0.9043
D(INGVEE(-1))	-0.000187	0.001342	-0.139432	0.8904
D(INGVEE(-2))	-3.29E-04	0.00101	-0.325638	0.7479
D(GRHCI(-1))	0.018437	0.150198	0.12275	0.9035
D(GRHCI(-2))	0.091692	0.139531	0.657144	0.5182
D(LNRIPC(-1))	0.005328	0.009762	0.545762	0.591
D(LNRIPC(-2))	-0.010163	0.010406	-0.976687	0.3398
D(GRGDP(-1))	-6.53E-05	0.000117	-0.558079	0.5827
D(GRGDP(-2))	2.97E-05	6.94E-05	0.427749	0.6732
ECT(-1)	-3.73E-01	1.60E-01	-2.337173	0.0294
Panel B: Goodness-of-fit Measures				
R^2			0.652665	
Adjusted R^2			0.437648	
Sum squared resid			3.67E-05	
Durbin-Watson stat			2.509433	
Source: Author's compilation from Eviews10 (2021)				

Table 4.12 Estimated Short Run Dynamics Test Results for Objective Three

SHORT RUN FOR OBJECTIVE THREE				
Panel A: Short Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.009958	0.033226	0.299697	0.7666
D(GRRGDP(-1))	-0.175516	0.193529	-0.906926	0.3722
D(INGVEH(-1))	-0.019951	0.100893	-0.197747	0.8447
D(INGVEE(-1))	0.023325	0.112416	0.207487	0.8371
D(GRSSCER(-1))	-0.012355	0.264744	-0.046667	0.9631
D(PSER(-1))	-0.004031	0.010994	-0.366647	0.7166
D(INFDI(-1))	-0.040969	0.051044	-0.802626	0.429
ECT(-1)	-0.432085	0.212485	-2.033481	0.0516
Panel B: Goodness-of-fit Measures				
R^2			0.30873	
Adjusted R^2			0.135912	
Sum squared resid			1.011786	
Durbin-Watson stat			2.096585	
Source: Author's Compilation from Eviews 10 (2021)				

4.7 DISCUSSION OF RESULTS

This chapter of the research focused on the results of the evaluation in accordance with this study's objectives within the time frame of 1981 to 2019. There are three specific objectives to be achieved in this empirical work. By using econometric analytical methods, the three objectives of this study were achieved: investigating the impact of government expenditure on education in Nigeria, examining the impact of government expenditure on health in Nigeria and evaluating the impact of human capital development on economic growth in Nigeria. After an analysis of the impact of government expenditure on education, the impact of government expenditure on health and the impact of human capital development on economic growth were examined via the ARDL estimation method, it was discovered that government expenditure in relevance to the education sector has a negative and insignificant effect on growth rate of secondary school enrollment, which stands as a proxy for education in the long run, however, in the short run, expenditures on this sector only has a positive effect on education in cognizance of previous years, although insignificant. It is also realized that government expenditure as regards health, in respect to life expectancy, has a negative and insignificant effect on health in the long run and short run. Also, it is seen that human capital development by means of government expenditure has a positive but insignificant effect on economic growth in the long run, however, it has a negative and insignificant effect on economic growth in the short run except for government expenditure on education in previous years. This finding contrasts the work of Amadi Kelvin and Alolote Ibim, (2019) as government expenditure on health and education was seen to have a positive and significant impact on economic growth. However, it agrees with the findings of Liu et al. (2008) and Laudau (1983) in concluding that government expenditure has no worthy impact on growth. Consequently, it is seen that this study rejects hypothesis 1 and 2 by which this study abides as government expenditure has been estimated to have a

negative effect on education and health. However, human capital development has a positive impact on economic growth, although insignificant.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

The summary of findings based on this research is presented in this chapter. On the basis of the study's findings, policy conclusions and recommendations are being outlined. The study's major contribution to knowledge, as well as its limits and suggestions for future research were also addressed.

5.2 SUMMARY OF FINDINGS

The primary objective of this project assignment was to investigate the relationship between government expenditure on the health and education sector and its resultant effect on economic growth at large between 1981 and 2019. The effect of government expenditure on the health sector has been accurately calculated. Aspects of the impact of government expenditure on health has also been investigated in this study. Also, the impact of human capital development, in recognition of these sectors, on economic growth has been estimated. The required foundation necessitating this study was established in order to achieve these objectives, and the problems were evaluated and addressed in the appropriate manner. This research employed an econometric analytical technique, the Auto Regressive Distributed Lag model (ARDL), in accomplishing the specific objectives of this study. Prior to this, the Philip-Perron and Augmented Dickey-Fuller tests were run on the concerned variables to ensure their order of integration at either or both level and one as shown in tables 4.3 and 4.4. The appropriate lag lengths to be used in estimation process across various objectives was determined using the VAR

selection criteria as shown in table 4.5. The presence of long run relationship among variables according to specified objectives was determined with the use on the co-integration bound test as shown in table 4.6, after which the short run relationships across various objectives were estimated.

5.3 CONCLUSION

This study sets out to establish the impact of government expenditure on human capital development as regards education and health, and also, the resultant effect of human capital development on economic growth. In order to achieve this, this study used some economic indicators such as the growth rate of secondary school enrollment, growth rate of life expectancy index , government expenditure on health, government expenditure on education, growth rate of the human capital index, real income per capita, growth rate of GDP as well as real GDP and so on.

Some major findings in this study show that government expenditure on health and education have a positive but insignificant impact on economic growth as well as the growth in the rate at which people enroll in secondary schools. This can be due to the fact that secondary school learning is one of the major contributions to one's capabilities knowledge-wise and this increases the level of skills set one has, hence, their productive capabilities, which says good for the economy at large. However, the need for quality education in these times should be emphasized so as to have a significant impact on the economy at large, also, government expenditures in the health and education sector should be in strategic areas that can yield best possible results. This can also be seen as government expenditure on education has a negative and insignificant impact on education, likewise on health and in the health sector.

5.4 RECOMMENDATIONS

On the premises of the findings of this research, the following recommendations are given to allow government expenditure on education and health yield the best possible results on human capital development and eventually economic growth;

First and foremost, in order to guarantee efficient development in the Nigerian economy, the government should boost allocations across a broader range of industries rather than concentrating its abundant resources on a single sector. The focus of this assistance should be on the development on human capital by further developing the country's educational system not just providing substandard educational facilities. It is of public opinion that public schools are of a much lesser standard than private schools which should be improved on, as the masses only have access to the public facilities, with Nigeria being a largely underdeveloped country. Also, employment of qualified teachers, provision of incentives to teachers and a better allocation of resources should be carried out.

Also, it is impossible to overstate the importance of reducing corrupt practices in various systems of the economy. Thus, spending on these sectors (health and education) will have a major impact on not only the growth of the sector but also on the economy. This can be accomplished via competent surveillance of initiatives and development project that have been initiated. This will go a fair distance towards reducing the number of "white elephant" projects embarked on to the benefit of some money grabbing politicians. Hence, increasing the pace of significant development in the industry. Also, the system of operation in the health sector should be reviewed and improved upon, quality infrastructural facilities should also be provided.

5.5 CONTRIBUTION TO KNOWLEDGE

This study has contributed to knowledge in three aspects. First, it has evaluated the objective one which is to evaluate the impact of government expenditure on education, which shows a negative and insignificant impact. Second, it also investigated objective two which is to examine the impact of government expenditure on education, which yielded a similar conclusion. Conclusively, objective three which was geared towards determining the impact of human capital development on economic growth in Nigeria, which yielded a positive but insignificant impact.

5.6 LIMITATION TO THE STUDY

There were several hinderances to the scope this investigation. First and foremost, is the time constraint put up against the completion of this project. Another thing was the difficulty experienced in gathering relevant data on needed variables in carrying out this study, which also needed to conform to the criterion of being integrated of order zero at level or one at first difference. Also, another limitation is the challenge involved in capturing all variable influencing a particular variable of interest. Lastly, is the difficulty the researcher faced in running the analysis, being that prior to this time, she had no knowledge on how to operate the software needed for this analysis- Eviews10. These restrictions, however, do not diminish the relevance of this research.

5.7 SUGGESTION FOR FURTHER STUDIES

The purpose of this study was to investigate the impact of government expenditure on human capital development as well as its resultant effect on economic growth. In doing

this, particular measures and components of human capital development as well as economic growth were being used. However, other aspects of human capital development and government expenditure, via the use of new variables, can be examined as to their impacts on economic growth, perhaps even bi-directional amongst each other. These variables include, literacy rate, mortality rate, birth rate, government recurrent and capital expenditure and gross enrollment rate, among other things.

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