Public Expenditure and Human Capital Development in Nigeria

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Abstract

Despite consistent improvement in government budgetary allocation and spending on health and education sectors in Nigeria, the country human capital development index remained very low as compared to others countries. This study empirically investigated the relationship between public expenditure and human capital development in Nigeria, evidence from 1960 to 2019.Public expenditure is proxied by public education expenditure and health expenditure while human capital development is proxied by human development index. Secondary data was obtained from central bank statistical bulletin and United Nations development programme report various years. Hypotheses were tested using Ordinary Least Square Regression statistical tool with the aid of E-view 10 econometric statistical software. The finding shows that public education expenditure had significant impact on human development index. Evidence shows that public health expenditure had positive significant impact human development index. Empirical evidence revealed thatjointly health and education expenditure has a positive but insignificant impact on human development index in Nigeria. The study concludes that public expenditure through investment in education and health sector influence human capital development in Nigeria. Thus, the researcher recommends amongst others that; Nigeria government should increase funding of education sector to meet education, scientific and cultural organization minimum requirement. Education should be made constitutional provision to ensure improvement in the quality of education and to prevent political leaders from non-commitment to educational sector growth. Government should design human capital development master plan based on short and long time framework and must be committed by current and future government in Nigeria.

Keywords:Public Expenditure, Human Capital Development, Human Development Index, Nigeria

Introduction

Human capital investment in education and health enhanced human capital development in developing countries like Nigeria. The critical elements of human capital development are predicated on investment in education and health sectors. Investment in education is the hung that create new skill, knowledge, and inducement which drive economic expansion through making individual more proficient and generate productive economy. Expenditure on education creates new technology, invention and innovation leading to wealth formation and human capital development. Health on the other hand mirrors a state of complete well being which lead to competent work force and improve human capital development through acquisition of skill and knowledge. Oluwakemi et al. (2018) stated that public expenditure on health, education, social community services, agriculture, transfer services and research and development accelerate human capital development in Nigeria. Edeme et al. (2017) noted that increase in public expenditure improves the level of human capital development. This lead to the fact that advancement in human capital development lead to healthier life and greater life expectancy. Public expenditure on education and health sectors help to improve life, reduce

poverty and increase employability and productivity leading to increase in human capital development. Schultz (1961), asserts that investments in human capital such as expenditures on education and health account for most of the rise in real earnings per workers. According to Becker (2012), investments in human capital raise an individual productivity and earnings. The basic philosophy is that an extremely educated and healthier workforce is projected to be relatively more industrious. Oluwakemi et al. (2018) asserted that investment in education is pivotal to human capital development because it has social benefits of increasing the number of skilled workers, enhanced occupational mobility; reduce the rate of unemployment in the economy. Fundamentally, improvement in education increase earning capacity, productivity, access to health information and enhance human capital development compare to countries with lack of investment in education. Investment in education has been regarded as a medium for sustainable human capital development. Educations enhance people's ability to contribute more to the growth process and improve their level of productivity. Education guarantees people to live longer and healthier life, because knowledgeable person improve human capital development. Richardson & Chigozie (2019), stated that health expenditure plays an immense role in the health condition of a society by lowering the effective price of health, enhancing inputs to create conductive environment for health living. Strategic investment in health not only deliver quality health and improve well-being for more people, but improved efficient economies, create jobs and productivity of labor force. Expenditure on health is a catalyst for economic growth, human capital development and societal growth. The primary purpose of investment in health is to enhance healthier living, improved standard of living and prolong life on planet earth, which lead to good quality of life and improved human capital development.

Ajie et al. (2014) stated that public expenditure are expenditure incurred by government like federal, state and local government to satisfy the collective social wants of the citizens. Public expenditure are expenditure incurred by the government of country on collective needs and wants such as pension, education, health care, housing, security and infrastructure etc. Jeliloy & Onder (2016), viewed public expenditure as operating cost incurred by public authorities for its own maintenance, conservation and welfare of the economy as a whole. Public expenditure is usually classified into capital expenditure and recurrent expenditure in the Nigeria context. Capital expenditure consists of administration, economic services, social community services and transfers services while recurrent expenditure comprises of administration, such as defense internal security, economic services such as agriculture, construction, transport, communication, social community services such as education, health and transfer services. Todaro & Smith (2006), stated that public expenditure on health and education is the major constituent of human capital development which play active role in improving human knowledge and decrease the number of death. Okojie (2005), posited that human capital development is the process of acquiring and increasing the number of persons who have the skills, education and experience that are critical for economic growth and development. Human capital comprises of skills, experience, knowledge, competencies and abilities of the workforce. Ejere (2011) noted that human capital development is the purposeful and continuous process of acquiring skills, knowledge and expenditure that are applied to create economic value that drive sustainable national growth. Jhingan (2005), stated that economic growth cannot take place without improvement in human capital development. He aggregated human capital development as training, education, schooling and quality health care delivery. Available record indicates that there has been an increase in Nigerian government revenue within the past years and government spending has grown immensely. However, education and health sector are beneficial of these government expenditure. Evidence from reliable records shows that Nigeria education and health sectors have constantly received less allotment than

advocated by the United Nation education, scientific and cultural organization, Asiyai (2013), stated that under funding, death of qualified and trained teachers, infrastructures deficits and policy inconsistencies are the constraints to human capital development in Nigeria. Government budgetary allotment for education and health in Nigerian has being consistency on the declaimed rate over the pass years. Aiggokhan et al. (2002) stated that the standard funding requirement for education prescribed by the United Nation agency is that every country should apportion at least 26 percent of its annual budget to its education sector but Nigeria spend less than nine percent of its annual budget on education. Nigeria education and health sector is characterized with consistent strikes by lectures and doctors for nonpayment of salaries and other benefit leading to the closure of schools and hospital. In 2015 United Nations organization categorized Nigeria as low in human capital development index. Base on extensive literature reviewed, evidence advocate that few studies have being carried out to appraise the effects of public expenditure on human capital development in Nigeria (see Samuel & Enebe 2019, Chinasa et al; 2018, Ehimare et al; 2014) but with emphasis on education and leaving out health sector which is a critical determinant of human capital development.

The current study measures public expenditure with expenditure on education and health while the above mention past studies proxed public expenditure with only expenditure on education. Empirical studies associated with public expenditure and human capital development in Nigeria indicate mixed conclusion, inconsistent and often contradictory result (see Minin et al; 2018, Matthew O. 2017, Shuabu & Oladayo, 2016, Richardson & Chigozie, 2019, Godstime & Uchechi, 2014). As a result of contradictor nature of past studies. Hence, the need for further investigation on the impact of public expenditure on human capital development in Nigeria. The methodology, timing and scope of the current study are different from the past studies. This current study investigate the effects of public expenditure on human capital development in Nigeria evidence from 1960 to 2019 while other studies mention above covers 1981 to 2014, 1990 to 2015. The current emphasis of this study is on the effects of public expenditure on human capital development in Nigeria while past empirical evidence on public expenditure in Nigeria focus on economic growth and development (see Egbulonu & Ubechu 2018, Debekeme & Briggs 2017 Muhammed et al; 2020, Robinson et al; 2017, Charles et al; 2015, Cynthia et al; 2016, Andabai & Eze, 2018, Adediran, 2014 Engene, 2016). This study becomes justified as our widespread literature reviewed does not reveal an empirical evidence in Nigeria context that have conducted research on the association between public expenditure and human capital development in Nigeria, evidence from 1960 to 2019, to the best of our knowledge. This is probably the first to extend the time frame to 1960 year of independence given that none of the past empirical studies on the subject matter extended beyond 1970. Thus these identified problems have created a knowledge gap in this study and it is based on this background that the study attempts to empirically investigate the effects of public expenditures on human capital development in Nigeria.

Objective of the Study
The objective of the study is to investigate the relationship between public expenditure and human capital development in Nigeria. The specific objectives are;
1. To determine the extent of relationship between public education expenditure and human development index in Nigeria.
2. To investigate the extent of relationship between public health expenditure and human development index in Nigeria.

Research Hypotheses

The following research hypotheses were tested

H_{01}: There is no significant relationship between public education expenditure and human development index in Nigeria.

H_{02}: There is no significant relationship between public health expenditure and human development index in Nigeria.
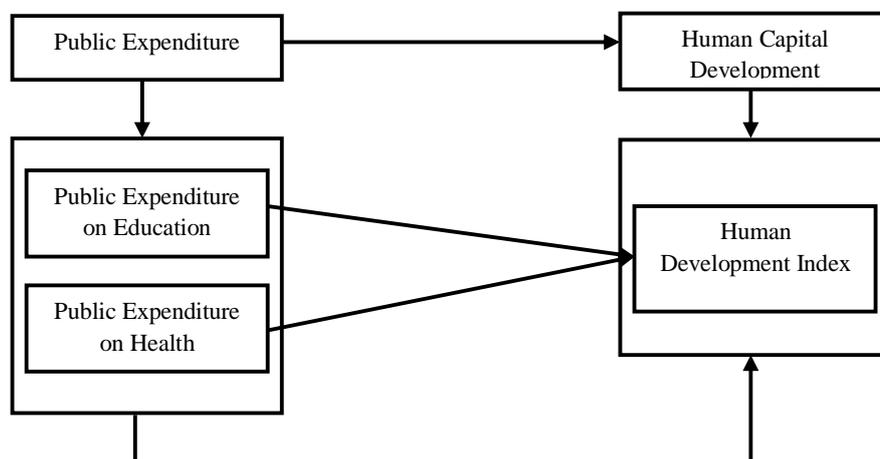
Conceptual Framework

Figure 1.1: Conceptual Framework showing the relationship between Public Expenditure and Human Capital Development in Nigeria.

Conceptual framework is a pictorial, portrayal or depiction of the assumed association or relationship among study variables. It is a set of concept that explains or predicts a particular occurrence or gives a large understanding of a phenomenon of interest or of a study problem. Thus the above conceptual framework highlights the interrelationship and connection between the dimension of the independent and dependent variable. The independent variable public expenditure is proxied by public education expenditure and public health expenditure while the dependent variable human capital development is proxed by human development index. The researcher in this study aims to ascertain the extent and degree to which the dimensions of the independent variables enhance the measures of the dependent variable.

Literature Review

This section contains theoretical, conceptual and empirical review on works that are related to the study.

Theoretical Framework

This study is underpinned on the theory of government expenditure and human capital theory.

Theory of Government Expenditure

The theory of government spending is the theory of the cost of providing services and goods through the public sector budget that will result in private sector expenditure. There are two approaches to the questions of growth of government sector, namely the growth in absolute size of public expenditure, and the growth in government sector in relation to economic growth. According to Brown and Jackson public expenditures are classifieds in two board categories, namely, exhaustive public expenditure and transfer public expenditure. Exhaustive government expenditures are government's purchases of labour, consumables, etc. (current goods and services) and capital goods and services (i.e. public sector investment in roads, schools, hospitals etc).

Human Capital Development Theory

Human capital theory started in the 17th century. According to Kwon (2009) the origin of human capital goes back to the appearance of classical economics in 1776, and thereafter developed into a scientific theory. After the materialization of that idea as a theory, Schultz (1961) recognized the human capital as one of the essential factors for a national economic development in the contemporary economy. With the appearance and advancement of human capital as an educational field, some researchers comprehensively attempted to explain how the human capital could add to socio-political expansion and freedom (Lazerson, 2004). However, contemporary beliefs were developed in the work of Backer (2012). The basic doctrine of the human capital development theory is that investment in human capital will lead to enhancement in the value of human capital and in turn yield better fiscal outputs. The theory has been criticized on the basis that the legitimacy of the theory is sometimes hard to confirm and paradoxical. Conventionally, economic strength was largely dependent on substantial physical assets such as land, factories and equipment. Labor was a compulsory element, but increases in the worth of the commerce came from investment in capital equipment. Regardless of the criticisms, contemporary economists appear to agree that investment in education and health care are the solution to improving human capital and eventually increase the economic outputs of the country.

Conceptual Review
Public Expenditure

Government expenditure is recognized as public expenditure. Public expenditure refers to the payment which government incurs in the performance of its business (Lean, 2006). Nwaeze, et al. (2014) stated that public expenditure could be generally classify into recurrent expenditure and capital expenditure. Recurrent expenditures are monies spent on government routine functions, such as: employee's salaries, administrations, running of critical services, preservation of infrastructural amenities and other related activities. Capital expenditure is concerned with expenses on acquisition of things in stable nature, such as; buildings, construction of roads, bridges and other related projects. Abu and Abdullahi (2010) observed that some scholars argue that increase in government expenses pattern had optimistic impact on socio-economic development.

Public Education Expenditure

Education has been considered as one of the most significant investments in human capital and has been discussed extensively in the literature of economic growth. It has been argued that education can affect growth through many different mechanisms. For instance, education can affect growth by increasing the efficiency of the workforce, by reducing inequity, by promoting health, by reducing fertility levels, by creating better conditions for good governance, and by increasing the knowledge and the innovation capacity of an economy. Hanushek & Woessmann, 2008. Education being one of the major components of human capital ought to be given adequate attention. It has been argued that Nigerian government, over the years, has performed abysmally poorly in its budgetary allocation to the sector despite the outrageous tuition fees paid by students in the various federal education institutions in the country, especially at the tertiary level. For instance, public expenditure on education in 1962 was 3.6% of GDP and 18.2% of all government expenditure but b 1998 it had dropped to about 2.3% of GDP and 14.2% of the total expenditure of all arms of government in Nigeria (Hinchliffe, 2002). Similarly, budgetary allocation to the education sector was 7.53% on the average between 2010 and 2014, it dropped to about 7.05% between 2015 and 2018 despite the tremendous increase in the total budgets over the period (Ndujihe 2018). The highest approved

national budget (₦8.612 trillion) in Nigeria is recorded in year 2018 and only a paltry sum of about ₦605.8 billion which represents about 7.03% of the total budget was allocated to the education sector. These figures show that the government has not been given the sector the kind of attention it deserves despite its critical role as the driver of the growth of modern economies. They are also in sharp contrast to UNESCO international benchmark of 15 to 20 percent of the total annual budget as contained in the EFA global monitoring report for 2000-2015 (Adedigba, 2017).

Public Health Expenditure

According to WHO (2010), public health expenditure consists of recurrent and capital expenditure from government budgets, external borrowings and grants (including donations from global agencies and NGOs), as well as obligatory health insurance finances. History is a witness that fundamental breakthrough in public health, diseases control and enhanced nutritional intake have given increase to great takeoffs in economic growth. Nigeria's health transformation agenda is well expressed in the National Economic Empowerment and Development Strategy (NEEDS), engineered by the National Planning Commission (NPC, 2004). The aim of this health restructuring is to advance the health condition of Nigerians in order to achieve internationally satisfactory rank of poverty reduction. Aranda (2010) stated that the major reason for health expenditure is the expectation of improved health status, and that health position is governed by health investment. The demand for health care is derived from the demand for health itself. Both health care spending and enhanced health condition are means to an end; the end is improved output and nationwide growth. Correspondingly, Berger and Messer (2002) explained that one of the fundamental ways by which governments can modify their healthcare delivery systems is to raise public funding of healthcare infrastructure. Clement et al. (2011) identified demographic and non-demographic factors that influence health care spending. The demographic factors include changes in age distribution within the population while the non-demographic factors include increasing incomes, health technology innovation, health policies and institutions. In a related study, Denton et al. (2004) identified structural, behavioral and psychosomatic factors that determine health. The structural factors include age, family characteristics, profession, education, earnings and societal support. Denton and Walters (1999) noted that structures of societal disparity as the most vital determinants of health. Irwin et al. (2008) explained that material circumstances which include factors such as housing and neighborhoods quality, consumption strength and the physical work surroundings can influence the health condition.

Human Capital Development

Human capital has been renowned internationally as one foremost factor that is accountable for the wealth of a Nations According to Smith (1776), he underlined the significance of "the acquired and valuable abilities of all the residents or members of the public in he's works. Romele (2013) defined Human capital as the entirety of knowledge and skills which have been accumulated throughout life, through education, training, and work experience and which influence labor productivity. Onakoya (2013) as cited in Adeyemi & Ogunsola (2016) described human capital as a vital issue used in converting all resources to benefit mankind. Human capital is represented by the aggregation of investment in activities, such as education, health, on-the-job training and relocation that enhance an individual's output in the labor marketplace. Frank & Bemanke (2007) as cited in OECD (2009) defines that human capital is 'a combination of factors such as education, experience, training, intellect, energy, work habits, steadfastness, and inventiveness that influence the worth of a worker's marginal product. Hence, human capital refers to the method of acquiring and growing the quantity of citizens who have the skills, good health, schooling and experience that are vital for fiscal growth.

Aluko (2015) defined Human capital development to denote enhances the skills, knowledge, efficiency and resourcefulness of citizens through a process of human capital formation generally conceived. Thus, human capital development is a citizen's centered stratagem, and not goods centered or production centered tactic of growth. Torruam & Abur (2014) Human capital development can be seen to mean increasing skills, knowledge, productivity and resourcefulness of citizens through process of human capital formation. It is a citizen's centered strategy of growth which is documented as an agent of nationwide growth in all nations of the globe. Human capital formation refers to the procedure of acquiring and raising the number of people who have the skills, good health, education and experience that are critical for economic development. Human capital development refers to the process of acquiring and increasing the number of human being who have the skill, education, experience which are significant for the fiscal and political growth of a nation. Human capital development is thus connected with investment in man and his expansion as a inventive and prolific resource. Jhingan (2013) categorized and developed human resources into six ways: Heath facilities and services: this involves all expenditure that affects the life expectancy, strength and stamina, and vigor and vitality of the people, On the job training which includes old type apprenticeship organized by firms, Formally organized education at elementary, secondary school and higher level, Study programmed for adults that are not in agriculture, It involves migration of individual and families to adjust changing job opportunity (factor mobility), Finally, transfer or importation of technical assistance, expertise and consultants.

Access to available health services increases life expectancy, reduces infant mortality and improves upon many other health parameters. Healthiness reduces causality due to illness and increases the competence of the workforce, which indirectly contributes to human capital development.

Human Development Index

Nzotta & Okereke (2009) stated that human development index (HDI) is a composite index which includes health, education, income live hood, security and other indicators, in other words human development, health life, knowledge and decent standard of living. Nseabasi (2012) stated that the chief aim of human development is to provide nations with complete measure of environment they offer for their citizens in terms of opportunities for personnel accomplishment. Ogen (2003) noted that the higher the human development index the better the conditions the company created for its citizens to live and work. Lawal (1997) is of the review that the main idea of human development index is as follows: people are the real value of any nation, and the richness of human life is what every nation's government should worry about.

Human Development Index measures long-term progress in three basic areas of human development namely: access to safe and healthy life, access to education, and a decent living standard (United Nations Development Programme (UNDP), 2014). Human Development Index (HDI) is a move towards a more holistic view of development *which* had previously focused more on per capita income. United Nation's Human Development released Human Development Index (HDI) first as part of her 1990 Report. The report stated that "development is much more than just the expansion of income and wealth; it should be a process of enlarging people's choices" (UNDP, 1990). The United Nations developed Human Development Index (HDI) as a measuring tool that ranks countries' levels of social and economic development based on three criteria: Health Index, Education Index, and Standard of Living Index. The health index represents life expectation (i.e. the numbers of years) of a particular region or country under study. It correctly describes the extent to which life expectancy of the people in

the area or country under study is greater than the minimum life expectancy. According to the United Nations (UN), the minimum and maximum life expectancy in the world is set at 25years and 85 years respectively (UNDP, 2014). The education index represents the literacy rate and enrollment rate of people, in a particular region or country under study. The Literacy rate means the percentage of people of 16 years of age and above who are literates (UNDP, 2014). These people must be able to write, read and understand a simple statement regarding their day-to-day life. While enrollment rate is the percentage of children of school-going age (primary, secondary and tertiary), who go to school. The standard of living index represents the per capita income of a region or country expressed in US$ at purchasing power parity (PPP) rate. They consist of the income of a country, the exchange rate between the country's currency and US$, and the price level index of the country in comparison to the US price level. Nigeria's HDI value for 2014 is 0.504, which is in the low human development category ranking the country at 152 out of 187 countries and territories. The Nigeria's HDI value increased from 0.466 to 0.504, between 2005 and 2014, an average annual growth of about 0.81 percent or an increase of 8.1 percent (UNDP, 2014).

Empirical Review

Ogbonnaya et al; (2017), empirically investigate the relationship between government human capital spending and human capital development: Evidence from Nigeria 1990-2015. The study adopts autoregressive distributed lag methods. The result reveal that both in the short and long run government health spending impact positively through to a very large extent insignificant, on human capital development in Nigeria but not so with government education spending. This accounts for the low human development index of Nigeria. Paul & Akindele (2016), examined the impact of human capital development in economic growth in Nigeria. The study adopts the use of ADRL-Co-integration analysis to estimate the relationship among the variables used in the study. The findings from the study revealed that there is positive long-run relationship among secondary school enrolment, public expenditure in education, life expectancy rate, gross capital formation and economic growth but it is statistically insignificant. The results also showed that there is negative long-run relationship among primary, tertiary school enrolment, public expenditure on health and economic growth.

Samuel and Ngozi (2019), investigate government educational expenditure and human capital development in West African countries. The result obtained shows that increase government education and health expenditure have positive and significant impact on primary and secondary school enrolment. The Granger causality result also shows that there is bidirectional causality between government health expenditure and primary as well as secondary school enrolment. The result also shows that there is bidirectional causality between government educational expenditure and secondary school enrolment. Michael, (2017), investigates the effect of government human capital investment on economic growth in sub-Saharan Africa: Evidence from Nigeria, South Africa and Ghana (1980-2013). The results indicate that two out of the three human capital proxy variables; health, (GIH), and Education (GIE), show significant positive effect on growth only in Nigeria, while literacy ratio (LR) is insignificantly positive in all countries. Christopher &Utpal (2020). Investigate government expenditure on human capital and growth in Namibia: a time series analysis: from 1980-2015. The findings reveal a significant long-run positive relationship of government spending on education with literacy rate, net primary and gross tertiary enrolment rate. Whereas, no co-integration between government spending on education and gross enrolment rate at primary and secondary level is observed. The vector auto-regression analysis revealed significant impacts of expenditure on healthcare and education on the GDP growth in the long run through improved human resources.

Research Methodology

The study adopts the ex-post facto research design which allows for causal association between the independent and dependent variables. This was used to ascertain the nexus between public expenditure and human capital development without undue influence or manipulation of the study variable data which was already in existence. Secondary data were used and collected from central bank of Nigeria statistical bulletin various years and united nations development programmes reports various years from 1960-2019. Conveniences sampling techniques was used in selecting the sample size of the study which is non probability method of selection. The independent variable public expenditure is proxied by educational expenditure and health expenditure while the dependent variable human capital development is proxied by human development index. The study adopts the used of ordinary least square regression statistical tools to test the formulated hypothesis, our choice of OLS was informed by its quality of best linear unbiased efficiency (Blue).

Model Specification

The study adopted econometric model in investigating the association between public expenditure and human capital development in Nigeria, public expenditure was proxied by educational and health expenditure while human capital development was proxied by human development index. The functional model was written in explicit form as follow.

HCD	=	$f(PE)$ - - -	i
HCD	=	$\propto 0 - \propto PE$ - -	ii
HDI	=	$f(PEE, PEH)$ - -	iii
HDI	=	$\beta_0 + \beta_1 PEE + \beta_2 PEH + \mu$	iv

Where

HCD	=	Human Capital Development
PE	=	Public Expenditure
HDI	=	Human Development Index
PEE	=	Public Expenditure on Education
PEH	=	Public Expenditure on Health
β_0	=	Intercept, β_1 and β_2 are the coefficient of each variable of the

regression whereas N represent the error term.

Data Analysis and Interpretation

The data were analysis and interpreted using descriptive statistics, bivariate and multivariate analysis through the use of ordinary least square regression with the aid of eview 10 econometric statistics software.

Table 4.1: Descriptive Statistics and Normality Test for all Variables

	PEE	PEH	HDI
Mean	101.1527	53.70248	0.383367
Median	14.82344	15.45280	0.389000
Maximum	593.3328	388.3671	0.630000
Minimum	0.162154	0.041315	0.182000
Std. Dev.	143.7626	87.91564	0.115473
Skewness	1.563020	2.007378	-0.345472

Table 4.1: shows summary descriptive statistics and normality test of all variables adopted for the study. The average value of public expenditure on education in Nigeria from 1960-2019 is 101, 152, 7 billion while the median value was 14,823,44 billion. The maximum government expenditure on education is 593, 332.8 billion while the minimum expenditure on education is 16,215.4 billion. This indicates that within the period of investigation which is from 1960-2019. The Nigeria governments on the average have invested N101, 152.7 billion on education while the maximum amount invested on education is 593,332.8billion with a minimum investment of 16,215.4billion. It has a standard deviations value of 143.7626 which is highest within the group. The skewness of public expenditure on education is 1.563 which is greater than zero implies leptokurtic and positive skewness of educational expenditure within the period. This indicates the degree of asymmetry or departure from the mean of the distribution is positive and consistent increase in the amount of educational investment in Nigeria. The kurtosis of government expenditure on education is 4.568933 which is greater than three, this implies that the distribution is positive kurtosis (peak curve) which suggest educational expenditures mirrors a normal distribution as most of the value hovered around the mean. The Jargue-Bera value of 30.58419 and probability value of 0.0000 is less than 0.05 significance level. This suggests that the null hypothesis of normal distribution is rejected.

The average value of public expenditure on health within the period of study is ₦53,702.48 billion while the median value of ₦13,452.80 billion investment on health sector. Health expenditure was maximum with the value of ₦388,367.1 billion and a minimum value of 41,315 billion. This implies from 1960 to 2019 Nigeria government have spend an average 53,702.48 billion on health sector, and maximum value of ₦388,387 billion with minimum value of 41,315 billion expenditure on health sector. Health expenditure has a standard deviation value of 87,91564 within the group which is second high in the series. The skewness value of public expenditure on health is 2.007378 which is greater than zero of a normal distribution. This implies leptokurtic (positive skewness of health expenditure, suggesting the degree of asymmetry from the mean distribution is positive and consistent increase in the value of government spending over the period. Kurtosis measures the Preakness or flatness of the distribution series. The kurtosis value of government expenditure on health is 2.007378 which is less than 3 of a normal distribution. This implies flat distribution (platykurtic indicating that there are lower values than the variable mean. The JargueBera value of public expenditure on health is67.82657 and the probability value of 0.000 which is less than 0.05 significance level implies that the null hypothesis of normal distribution is not upheld.

The average value of human development index in Nigeria from 1960 to 2019 is 0.383 and median value of 0.389. Human development index was maximum at 0.630 and minimum at

0.182 with the period of 1960-2019. The implication of this result is that Nigeria is among countries with lowest human development index in the world. Compare human development index world average of 0.731(UNDP) to Nigeria average of 0.383 obtained from 1960 to 2019, indicate that Nigeria need to invest more in human capital development activities. The standard deviation of human development index is 0.11547, which is lowest in the group. This implies the value find to be close to the expected value (mean). The skewness of human development index is -0.345472 which is less than zero of a normal distribution. This suggest negative skewness, implies that the distribution will have a long left tail indicating that there are lower value than the sample mean. The kurtosis value of human development index is 2.229366, which is less than 3 of a normal distribution. This indicates that the distribution is platyturtic (flat curve indicating that there are lower values than the variable mean. The Jargue Bera value of human development index is 2.678201 and probability value of 0262081 which is greater than 0.05 significance level. The hypotheses of normal distribution is accepted.

Hypothesis Testing
Decision Criteria
Accept the alternative hypothesis if the p-value is less than 0.05 and reject the null hypothesis if the p-value is greater than 0.05 significance level.

Test of Hypothesis 1
H0$_1$: There is no significant relationship between public expenditure on education and human development index in Nigeria.

Table 4.2: Regression Estimate of Public Education Expenditure and Human Capital Development Index

Dependent Variable: HDI
Method: Least Squares
Date: 10/27/20   Time: 10:53
Sample: 1960 2019
Included observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.334331	0.014700	22.74412	0.0000
PEE	0.000485	8.41E-05	5.764574	0.0000
R-squared	0.864246	Mean dependent var		0.383367
Adjusted R-squared	0.853285	S.D. dependent var		0.115473
S.E. of regression	0.092862	Akaike info criterion		-1.882641
Sum squared resid	0.500154	Schwarz criterion		-1.812829
Log likelihood	58.47922	Hannan-Quinn criter.		-1.855334
F-statistic	33.23031	Durbin-Watson stat		1.935597
Prob(F-statistic)	0.000000			

Table 4.2: shows regression result of the association between expenditure on education and human development index in Nigeria, evidence from 1960-2019. The R-squared value of 0.86 implies that 86% of the systematic variation in the dependent (human development index is predicted by the independent variable while the remaining 14% was due to unknown variable that are not included in the model). The regressed coefficient correlation result show the

existence of a positive and statistically significant relationship between public expenditure on education and human development index with coefficient of 0.000485 and probability value of 0.0000 which is less than 0.05 significance level. The critical t-value based on 3-1=2 degree of freedom in the numerator and 2 4-3 = 24 degrees of freedom in the denominator which shows a critical value of 3.44 of f-distribution at 5% level of significance. Therefore, we reject the null hypothesis in favour of the alternative hypothesis given that the f-statistics of 33.23 is greater than 3.44 critical t-value. We therefore conclude that the value of coefficient of determination is significant and the model adopted for this study is statistically fit. The critical value of the f-statistic at 5% level of significance is 1.72 and the calculated f-statistics value is 5.76. The computed t-statistics of 5.76 is greater than that 1.7 t-statistical critical value and the probability value t-statistics of 0.000000 is less than 0.05 significance level. Thus, based on this result we accept the alternate hypothesis and reject the null hypothesis and conclude that there is a significant relationship between public expenditure on education and human capital development index in Nigeria. The Durbin Waston statistics test of 1.92 implies that there is no auto correlation in the model.

Test of Hypothesis 2
H0₂: There is no significant relationship between public expenditure on health and human development index in Nigeria.

Table 4.3: Regression Estimate of Public Health Expenditure and Human Development Index

Dependent Variable: HDI
Method: Least Squares
Date: 10/27/20   Time: 10:58
Sample: 1960 2019
Included observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.340583	0.014040	24.25836	0.0000
PEH	0.000797	0.000137	5.810213	0.0000

R-squared	0.967907	Mean dependent var	0.383367
Adjusted R-squared	0.957008	S.D. dependent var	0.115473
S.E. of regression	0.092594	Akaike info criterion	-1.888414
Sum squared resid	0.497274	Schwarz criterion	-1.818603
Log likelihood	58.65243	Hannan-Quinn criter.	-1.861107
F-statistic	33.75858	Durbin-Watson stat	1.924966
Prob(F-statistic)	0.000000		

Table 4.3: Described regression result of the relationship between public expenditure on health and human development index in Nigeria, evidence from 1960 – 2019. The R-square value of 0.967907 implies that 96% variation in our dependent variable (human development index is attributed to the changes of our explanatory variable) (health expenditure while the remain 4% variation were caused by other factor not included in the model). The regression coefficient correlation of 0.00797 and probability value of .0.0000 implies that public expenditure has a positive and significant impact on human development index in Nigeria, evidence from 1960

to 2019. The f-distribution at 5% level of significance is 3.44 while the f-statistics calculated is 33.75 since the f-statistics calculated of 33.75 is greater than 3.44 of the f-distribution, we conclude that the value of coefficient of determination is significance and model adopted for this study is statistically fit. The critical value of t-statistics at 5% level of significance is 1.72 and the computed t-statistics value is 5.81. The computed t-statistics of 5.81 is greater than 1.72 t-statistics critical value and the probability value of the t-statistic of 0.00000 is less than 0.05 significance level. Thus, we reject the null hypothesis and accept the alternate hypothesis, conclude that there is a significant relationship between public expenditure on health and human development in Nigeria. The Durbin Watson of 1.92 shows that there is no auto-correlation in the model.

Table 4.4: Regression Estimate of Education and Health Expenditure and Human Capital Development Index

Dependent Variable: HDI
Method: Least Squares
Date: 10/27/20   Time: 10:59
Sample: 1960 2019
Included observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.336641	0.014878	22.62629	0.0000
PEE	0.000224	0.000273	0.819663	0.4158
PEH	0.000448	0.000447	1.002894	0.3202

R-squared	0.975270	Mean dependent var	0.383367
Adjusted R-squared	0.953350	S.D. dependent var	0.115473
S.E. of regression	0.092857	Akaike info criterion	-1.866799
Sum squared resid	0.491481	Schwarz criterion	-1.762082
Log likelihood	59.00397	Hannan-Quinn criter.	-1.825838
F-statistic	17.11971	Durbin-Watson stat	2.001026
Prob(F-statistic)	0.000002		

Table 4.4: Described regression result of the relationship between the joint impact of education and health expenditure on human development index in Nigeria, evidence from 1960 – 2019. The R-square value of 0.975270 implies that 97% variation in our dependent variable (human development index is attributed to the changes of our explanatory variable) (health and education expenditure while the remaining 4% variation were caused by other factor not included in the model). The regression coefficient correlation of 0.000224, 0.000448 and probability value of 0.4158, 0.3202 implies that health and education has a positive and insignificant impact on human development index in Nigeria, evidence from 1960 to 2019. The f-distribution at 5% level of significance is 3.44 while the f-statistics calculated is 17.11, since the f-statistics calculated of 17.11 is greater than 3.44 of the f-distribution, we conclude that the value of coefficient of determination is significance and model adopted for this study is statistically fit. The probability value of the f-statistic of 0.00002 is less than 0.05 significance level. Thus, we reject the null hypothesis and accept the alternate hypothesis, conclude that health and education expenditure has a positive but insignificant impact on human development index in Nigeria, evidence from 1960 to 2019. The Durbin Watson of 2.00 shows that there is no auto-correlation in the model.

Regression Diagnostic Test

Regression diagnostic test are used to evaluate the model assumption and to investigate whether or not there are observations with a large, undue influence on the analysis, the assumption for linearity, homoscedascity, independence and normality.
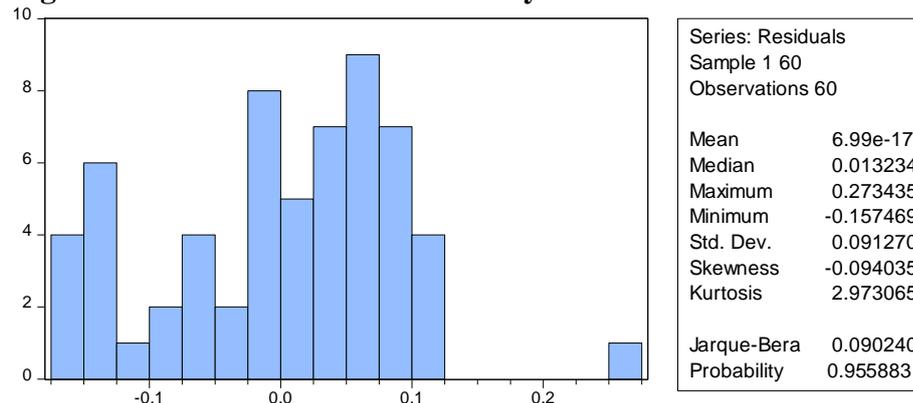
Residual Test of Normality

H0: Residuals follows a normal distribution
H1: Residuals do not follow a normal distribution
$\propto$= 5% or 0.05

Figure 4.1: Residual Test of Normality

Series: Residuals	
Sample 1 60	
Observations 60	
Mean	6.99e-17
Median	0.013234
Maximum	0.273435
Minimum	-0.157469
Std. Dev.	0.091270
Skewness	-0.094035
Kurtosis	2.973065
Jarque-Bera	0.090240
Probability	0.955883

Normality is the assumption that the underlying residual of the regression are normally distributed, if the residual are normally distributed, it means that your assumption is valid and model productions are also valid. The result of residual normality test in figure 4.1 indicates that the Jargue-Bera statistics is 0.090240 with a probability value of 0.955883, since the result of Jargue Bera test of 0.090240 and probability value of 0.05 is greater 0.955883 significance level, we conclude that the residual follows a normal distribution.

Heteroskedasticity Test

H0: Residuals are homoscedastic
H1: Residuals are heteroskedastic
$\propto$ = 5% or 0.05

Table 4.5: Breusch Pagan Godfrey

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.895132	Prob. F(2,57)	0.0635
Obs*R-squared	5.532956	Prob. Chi-Square(2)	0.0629
Scaled explained SS	4.926244	Prob. Chi-Square(2)	0.0852

Heteroskeasticity test is used to test whether the variance of the errors form a regression is dependent on the values of the independent variable, the result of Breusch Pagan Godfrey test of heteroskedasticity shows a probability value of 0.0629 which is greater than 0.05 significance. Thus, we conclude that there is no heteroskwdasicity in the model rather, the model is homoskedastic.

Conclusion and Recommendations

This study empirically investigated the relationship between public expenditure and human capital development in Nigeria, evidence from 1960 to 2019. Ordinary least square statistical

tool with the aid of eviews 10 was used to analysis hypothesis formulated. The regression estimates shows that public education expenditure is statistically significant in determination of human development index in Nigeria within the period of study. This implies that government expenditure on education contribute to increase in human development index in Nigeria, public health expenditure had positive and significant impact on human development index in Nigeria. This suggests that government investment in health increases the output level of human development index in Nigeria. Empirical evidence revealed that health and education expenditure has a positive but insignificant impact on human development index in Nigeria. The Nigeria human development index values is among the lowest in the world compare to others countries. Thus, the study concludes that public expenditure through investment in education and health sector influence human capital development in Nigeria. Based on the findings of this study, we recommend as follows;

- Nigeria government should raise funding of education sector to meet education, scientific and cultural organization minimum requirement.
- Education should be made constitutional provision to ensure advancement in the quality of education and to thwart political leaders from non commitment to educational sector development.
- Government should invest more in education and health to ensure enhancement in human capital development through raise in budget allotment to these sectors.
- Government should design human capital development master plan   based on short and long time framework and must be committed by existing and future government in Nigeria.
- Government should ensure structural reforms on health and education to improve critical skills development and both sectors should be skills demand oriented to ensure non mismatch between demands and supply for educational and health skills in the country.

References

Abu, N.,& Abdullahi, U., (2010) Government Expenditure and Economic Growth in Nigeria, 1970-2018: A Disaggregated Analysis. *Journal of business and economics* 2(1), 30-40.

Adawo, M. A. (2010). Poverty in Uyo: Characteristics, Causes and Consequences. *Journal of Economics Theory 7*(4), 31-36.

Adedigba, A., (2017). Fact check: Did UNESCO ever recommend 26 percent budgetary allocation to education?

Adediran I. A., (2014). Public investment in human capital and economic growth in Nigeria. Analysis on regime shifts. *Journal of economics and development studies*, 2(2), 213-231.

Adeyemi, P. A., & Ogunsola, A. J, (2016). The impact of human capital development on economic growth in Nigeria: ARDL approach, *Journal of Humanities and Social Science. 21*(3), 01-07.

Aiggokhan, B., Imahe O. & Ailemen M. I., (2007). Educational expenditure and human capital development in Nigeria. Research paper Ambrose Alli University.

Ajie H., Akekere J., Ewubare, D., (2014). Praxis of public sector economics and finance. Peral publishers Owarri.

Andabai, W., (2018). Empirical investigation of human capital investment and its effect on economic growth in Nigeria (1990-2017). *European journal of business and innovation research. 6*(6), 73-80.

Aranda P (2010). The Determinants of Health and the Differences in Healthcare Expenditures among Countries. *Journal of Health Economics. 8*(5),103-118.

Asiyai, R. I., (2013). Challenges of quality in higher education in Nigeria in the 21st century. *International journal of educational planning and administration.* 3(2), 159-172.

Becker G. S., (2012). Human capital and economic growth. *Journal of political economy* 98(5), 12-37.

Berger MC, Messer J (2002). Public Financing of Health Expenditures, Insurance and Health Outcomes. *Journal of economics and finance,* 3(4), 2105-2113.

Charges O. N., Emmanuel E. C. & Akujuobi B. C., (2015). Public expenditure and economic growth in Nigeria. *Journal of management studies and economic system* 1(3), 147-160.

Chinasa, E. U., Boniface E. I., Oliver E. O., & Divine N. O., (2018). Public capital and recurrent education expenditure and economic growth in Nigeria. An empirical investigation. *Journal of business management and economic research* 2(10), 28-38.

Christopher P. P. S., & Utpal K. D., (2020). Government expenditure on human capital and growth in Namibia: a time series analysis: from 1980-2015. *Journal of economics structures,* 4(2), 8-10.

Clements B, Coady D, Shang B, Tyson J (2011). Healthcare Finances; *Journal of Finance and Development* 3(1),15-23.

Cynthai C. D., Lawrence O. & Godly O., (2016). Public expenditure and economic growth in Nigeria. *International journal of advanced academic research* 2(12), 23-39.

Debekeme, B. & Briggs C. A., (2017). Expenditure pattern and economic growth in Nigeria. *International journal of business and law research*. 5(4), 128-136.

Denton M, Prus S, Walters V (2004). Gender Differences in Health. A Canadian Study of the Psycho-social, Structural and Behavioural Determinants of Health. *Journal of social science* 5(8),2585-2600

Egbalonu, K. G., & Ubechu, T. N., (2018). Public expenditure and Nigeria economic growth. *International journal of innovation finance and economic research* 6(3), 74-89.

Eggoh, G., Houeninvo, H., & Sossou, G. (2015). Education, health and economic growth in African countries, *Journal of Economic Development, 40* (1), 60-70.

Ehimare, O. A., Ogaga- Oghene, J. O., Obansiagbon E. I., & Okorie, U. E., (2014). The Nigerian government expenditure on human capital development. *An efficiency analysis. European journal of business and social science,* 3(7), 1-13.

Ejere, S. I., (2011). Human capital formation as catalyst for national development. Nigeria in perspective. *International journal of business and management* 2(2), 98-104.

Eugene I., (2016). The contribution of government expenditure on economic growth of Nigeria disaggregated approach. *International journal of economics and management science* 5(5), 10-26.

Frank, R. H., & Bernanke, B. S. (2007). *Principles of Microeconomics* (3rd ed.), New York: McGraw- Hill/Irwin

God'stime O. E., & Uchechi S. A., (2014). Human capital development and economic growth. The Nigeria experience. *International journal of academic research in business and social science* 4(4), 2272-6990.

Hanif N., & Arshed, N. (2016). Relationship between school education and economic growth: SAARC countries, *International Journal of Economics and Financial. 6(1) 1294-300.*

Hanushek E. A., & Ludger Wossmann (2008). The role of education quality in economic growth. Policy research working paper, No. 4122. Washington, D. C. World Bank.

Hinchliffe, K., (2002). Public expenditure on education in Nigeria: Issues estimates and some implications. http://sitersources.worldbank.org/AFRICAEXT/Resources/no 29.pdf

Jelilor, G., & Onder E., (2016). Entrepreneurship issues and solutions evidence from Nigeria. *Pyrex journal of business and finance management research* 10(8), 10-13.

Jhingan, M. L., (2005). The economics of development and planning. India – new Delhi- Urinda.

Khembo, F., and Tchereni, B. H. M. (2013). The Impact of Human Capital on Economic Growth in the SADC Region. *Journal of* d*evelopment studies* 3(4), 144–152.

Kwon, D. (2009). Human capital and its measurement. Paper presented at the 3rd OECD World Forum on "Statistics, Knowledge and Policy" *Charting Progress, Building Visions, Improving Life.* Busan, Korea, 27-30 October.

Lawal, A. A., (1997). The economy and the state from the pre-colonial times to the present in Nigeria. *Journal of economic*. 3(1), 60-70.

Lawanson, O. I. (2009). *Human capital investment and economic development in Nigeria: The role of health and education.* Oxford: Oxford University.

Mankiw, N. G., Romer, D., and Weil, D. N. (1992). A Contribution to the Empirics of Economic Growth. *Quarterly Journal of Economics* 107(2), 407–437.

Matthew B. O., (2017). Human capital formation and economic growth in Nigeria. A time bound testing approach 1981-2014. *Journal of African educational research* 6(2), 80-87.

Michael, C. O., (2017). Effect of government human capital investment on economic growth in sub-Saharan Africa: Evidence from Nigeria, South Africa and Ghana (1980-2013). *International journal of Asian social sciences,* 7(4), 328-339.

Mini, A. M., Akutson S. K., & Auto E. M., (2018). Effect of government expenditure on human capital development in Kaduna State 1990-2015. An application of ARDL model. *Journal of economics and finance* 3(9), 32-38.

Muhammed D. A., Yunana Y. A., Wada M. R., & Yunana T., Wuyah (2020). Effect of government expenditure on economic growth in Nigeria. (1980-2020). *International journal of economic and business administration* 1(6), 12-17.

Ndujihe, C., (2018). Education sector gets paltry N3.9 trillion out of N55.19 trillion in 10 years https/www.vangardngr.com/2018/04/education-free-fall.

NPC (2004). National Planning Commission: National Economic Empowerment and Development Strategy (NEEDS), Abuja, Nigeria.

Nseabasi, S. A., (2012). From agricultural to petroleum oil production: What has changed about Nigeria's rural development*? International journal of developing societies*, 1(3), 97-106.

Nwaeze, C., (2010).*Public Financial Management: Theory and Practice*, Aba: Reconciliation Publishers Limited.

Nzotta M. S., & Okereke J. E., (2009). Financial deepening and economic development of Nigeria: An empirical investigation, *African Journal of accounting. Economics, finance and banking research.*

Ogbonnaya I. O., Ebele S. N., & Ama A. U., (2017). Does government human capital spending contribute to human capital development: Evidence from Nigeria. *International journal of sciences and research*, 3(1), 90-100.

Ogen, O., (2003). Patterns of economic growth and development in Nigeria since 1960. Lagos: first academic publishers.

Okojie, C. E. E., (2005). Human capital formation for productivity growth in Nigeria. Nigerian economic and financial review 7(1), 44-58.

Oluwakemi, A. O., Ayodejio & Olamide O. (2018). Correlates of human expenditure among rural households in Nigeria. *Journal of sustainability development* 4(1), 33-35.

Omankhanlen A. E., Joshua O. O., Emmanuel I. O., & Uchechukwu E. O., (2014). Nigerian government expenditure on human capital development: an efficiency analysis. *European journal of business and social sciences*, 3(7), 01-13.

Paul A. A., & Akindele J. O., (2016). The impact of human capital development on economic growth in Nigeria: ARDL approach. *Journal of humanities and social science* 3(2), 2279-0812

Paul, A. A., & Akindele, J. O., (2016). The impact of human capital development in economic growth in Nigeria. *Journal of humanities and social science*, 21(3), 12-15.

Richardson, E. & Chigozie N. K., (2019). Public expenditure and human development in Nigeria in the last decade, composition and distributional impacts. *Journal of economics and business* 8(2), 62-73.

Robinson M. O., Erevoke K. E. & Ukavwe A., (2014). Government expenditure and economic growth. *The Nigerian expenditure journal of Mediterranean of social science* 5(10), 2039-2117.

Romele, L. (2013). Human capital development and economic growth in Latvia, *European Scientific Journal, 9 (31).*

Samuel B. A., & Enebe N. B., (2019). Government education expenditure and human capital development in west African countries. *International journal of research and innovation in social science* 3(10), 2454-6189.

Samuel, B. A., & Ngozi, B. E., (2019). Government educational expenditure and human capital development in West African countries. *International journal of research and innovation in social sciences,* 3(5), 50-60.

Schultz T. P. (1960).The role of education and human capital one economic development. An empirical assessment center discussion paper, economic growth center, Yale University.

Schultz, T. W., (1961). Investment in human capital. American economic review, 6(1), 1-7.

Shualbu M. 7 Oladayo P. F., (2016). Determinants of human capital development in Africa. A panel data analysis. *Journal of OECONOMIA*. 7(4), 2353-1827.

Sunmoni, A. (2015). *Human Capital Development and Economic Growth in Nigeria: An Empirical Analysis.* University of Surrey, 1–50.

Todaro, M. P., & Smith S. C., (2006). Economic development Pearson education Ltd Edinburgn Gate Harlow, Essex, UK.

Torruam, J. T & Abur, C. C. (2014) Public expenditure on human capital development as a strategy for economic growth in Nigeria: application of co integration and causality test analysis, *International Journal of Research in Humanities and Social Studies, 1(2): 14-23.*

WHO (2010). "Regional Macroeconomics and Health Framework" World Health Organization Regional Office for South-East Asia p.22.