Government 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 stilled remained at its ebbs compared to other countries. This study empirically examined the impact of government expenditures and human capital development in Nigeria, spanning from 1981 – 2019. Government expenditure is proxied by education and health while human capital development is proxied by human Development index. Secondary data was obtained from the Central Bank of Nigeria Statistical Bulletin, various issues. The study employed autoregressive distributed lag techniques of analysis. Findings revealed that government education expenditure had significant impact on human capital development both in the short-run and long run. Moreover, empirical evidence further revealed that, it was only in the long run that health expenditure delivered a steady positive effect on human capital development. Cumulatively, expenditure on health and education improved human capital development by at most 16 percent in the long run. Thus, the researcher recommends amongst others; a composite consideration in budgetary allocation and implementation of expenditure on human capital development. This has the tendency of allowing the effect of any expenditure on human capital development to be seen and felt*.

INTRODUCTION

Investment in education and health enhances 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 incentives which drive economic expansion through making individual more proficient and generate productive economy. Public spending on education creates new technology, invention and innovation leading to wealth formation and human capital development. Public spending on health on the other hand mirrors a state of complete wellbeing which leads to competent work force and improved human capital development through acquisition of skills and knowledge. In the words of Oluwakemi, Ayodejio and Olamide (2016), public spending on health, education, social community services, agriculture, transfer services, research and development accelerate human capital development in Nigeria. Whereas, Ehimare, Ogaga and Okorie (2019) argued that increase in public spending on education and health improves the level of human capital development. This supports the fact that, advancement in human capital development leads to healthier life and greater life expectancy. Public spending 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) opined that investments in human capital such as spending on education and health account for most of the rise in real earnings per worker. Becker (2012) argued that investments in human capital raise an individual's productivity and earnings. The basic philosophy

is that an extremely educated and healthier workforce is projected to be relatively more industrious. Oluwakemi *et al.* (2016) observed that investment in education is pivotal to human capital development because it has social benefits of increasing the number of skill workers, enhancing occupational mobility and reducing the rate of unemployment in the economy. Still in the words of Oluwakemi *et al* (2016), fundamentally, improvement in education increase earning capacity, productivity, access to health information and enhanced human capital development compared to countries with lack of investment in education. Investment in education has been regarded as a medium for sustainable human capital development. Education enhances people's ability to contribute more to the growth process and improve their level of productivity. Education guarantees people to live a longer and healthier life, because knowledgeable persons improve human capital development. According to Richardson and Chigozie (2019), spending on health plays an immense role in the health condition of a society by lowering the effective price of health, enhancing inputs to create conducive environment for healthy living. Strategic investment in health not only deliver quality health and improve wellbeing for more people, but improved efficient economics, create jobs and productivity of labour force. Expenditure on health is a catalyst for economic growth, human capital development and social growth. The primary purpose for investment on 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.

Todaro and Smith (2006) opined that public expenditure on education and health is the major constituents 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 an increasing the numbers of persons who have the skills, education and experience that are critical for economic growth and development. Human Capital comprises of skill, experience, knowledge, competencies and abilities of the work force. Ejere (2011) observed that human capital development is the purposeful and continuous process of acquiring skills, knowledge and experience 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.

Evidence from reliable records shows that Nigeria education and health sectors have consistently received less amount than advocated by the UNESCO. Under funding, dearth of qualified and trained teachers, infrastructural deficits and policy inconsistencies are the constraints to human capital development in Nigeria (Asi-yai, 2013). However, government budgetary allocation for education and health in Nigeria has been consistently on the declined over the past years. Aiggokhan, Imahe and Aileman (2007) stated that the standard funding requirement for education prescribed by the united nation agency is that every country should appropriate at least 26% of its annual budget to its education sector but Nigeria spends less than nine percent of its annual budget on education. Nigeria's education and health sectors are characterized with consistent strikes by lecturers and doctors for non payment of salaries and other benefits leading to the closure of schools and hospitals.

The level of human capital development in Nigeria as a developing nation is quite discouraging considering the level of human and material resources available in Nigeria. The fiscal policies and engagement of Nigerian government expenditure have overtime failed to address the necessary under development within the economy. This prompted and generated series of debate among

scholars as to the relationship between government expenditure on education, health and economic development. According to the study of Abu and Abullahi (2010) and Coorey (2009), expansion in government expenditure induced economic development positively. In their study, they discovered that government expenditure on education and health raise the productivity of labour and increase the growth of national output. However, the levels of human capital development are contradicted by the rate of government expenditure over time in Nigeria. The poor human capital development growth are captured in the words of Oghene and Okorie (2014), when they discovered that there has been significant reduction in the efficiency of government expenditure since 1990 till date and its effect are not far fetched in human capital development in Nigeria. Based on this established problems, the study aim at examining the impact of government expenditures and human capital development covering the period 1981 – 2019 in Nigeria. Other objectives include:

- To examine the impact of government expenditure on education on human capital development in Nigeria.
- To examine the impact of government expenditure on health on human capital development in Nigeria.
- To examine the joint effects of government expenditure on education and health on human capital development in Nigeria.

The findings of this study would enrich the existing body of literature on the relationship between government expenditure on education and health and human capital development. This will further strengthened the correlation between education and health as an essential ingredient of human capital. For the government, it would provide a framework for policy formulation and implementation. The research findings, would serve as a foundation for further research in this aspect and other similar areas

The study examined the impact of government expenditures and human capital development. The study covered a time frame period of 38 years ranging between 1981 and 2019. The time frame is considered suitable for the study because of recent thoughts on the effect of human capital development on growth strides.

The study is presented in five sections: Section one introduces the subject matter of the paper and the objectives. Some of the relevant literature pertaining to the papers subject matter is reviewed in section two. Section three deals with the study's methodology, while the data analysis is done in section four. In section five, summary of findings and recommendations are presented.

RELATED LITERATURE REVIEW

In recent times, particularly in western countries, education and health are considered as an economic device that built human capital. In the position of Fitzsimons (1999), human capital theory is the most influential theory of western education, setting the framework for government policies since the early 60's. In Nigeria, the same understanding has become attached to education as a tool for improving workforce skills, enterprise, initiative, adaptability and attitudes. Harbison (1973) noted that human beings are the active agents who accumulate capital to exploits natural resources, build social, economic and political organisations, as well as the drivers of national development. In 2013, Ilegbinosa opined that the accumulation of human capital by countries is seen as an investment decision. He argues that while investment in human

capital has been a major source of individual, communal and national economic growth in advanced countries, the same cannot be said as the experienced in less developed countries, like Nigeria, where the human development index has remained at its ebbs for decades.

Conceptual Review
Human Capital Development:
Human capital has been renowned internationally as one foremost factor that is accountable for the health of nations. Accordingly, Smith (1776), underlined the significance of the acquired and valuable abilities of all the residents or members of the public in his works. Romele (2016) 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 labour productivity. Onakoya (2013) as cited in Adeyeani and Ogunsola (2016) described human capital as a vital issue used in converting all resources to benefit mankind. Frank and Benanke (2007) as cited in OECD (2009) defined human capital as 'a combination of factors such as education, experience, training, intellect, energy, work habits, steadfastness, and incentiveness that influence the worth of 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 growth. Aluko (2015) defined human capital development to mean enhancing the skills, knowledge, efficiency and resourcefulness of citizens through a process of human capital formation. Thus,human capital development (HCD) is a citizen's centered strategy of growth which is documented as an agent of national growth in all nations of the world. Human capital formation refers to the procedure of acquiring and increasing the number of human being who have the skill, good health, education and experience that are critical for economic development. Human capital development is thus connected with investment in man and his expansion as an incentive and prolific resource. Jhingan (2005) categorized and developed human resources into six ways: Health facilities and services, on the job training, formally organised education at elementary, secondary and higher levels, study programme for adult and finally transfer or importation of technical assistance, expertise and consultants. Access to affordable health services, increases life expectancy, reduces infant mortality and improved upon many other health parameters. Healthiness reduces casualty due to illness and increases the competence of the workforce, which indirectly contributes to human capital development.

Human Development Index:
Nzotta and Okereke (2009) stated that Human Development Index is a composite index which includes life expectancy, literacy rate and per capita income. In other words, Human Development Index consists of a healthy life, knowledge and decent standard of living. In the position of Nseabasi (2012), the chief aim of Human Development Index is to provide nations with complete measure of environment they offer for their citizens in terms of opportunities for personal accomplishment. Ogen (2003) noted that the higher the Human Development.
Index, the better the conditions the country created for its citizens to live and work. Lawal (1997) was of the opinion that the main idea of Human Development Index was 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: access to safe and healthy life, access to education and a decent standard of living (UNDP, 2014). Human Development Index is a move towards a more holistic view of development which had previously focused more on per capita income. The United Nations developed Human

Development Index 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. no 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 under study is greater than the minimum life expectancy. The education index represents the literacy rate and enrolment rate of people in a particular region under study. 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 human development Index value for 2014 is 0.523, which is the lowest human development category ranking the country at 152 out of 187 countries and territories. The Nigeria's human development Index value increased from 0.519 to 0.539, between 2013 and 2019, an average of about 0.81% or an increased of 8.1% (UNDP, 2020).

Public Education Expenditure:
In the economic growth literature, education has been highlighted as one of the most significant investments in human capital. 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 work force, by promoting health and by creating better conditions for good governance, and by measuring and increasing the knowledge and the innovation capacity of an economy (Hanushek and Woessenmann, 2008). Nigeria government over the years performed abysmally in its budgetary allocation to the sector despite the outrageous tuition fees paid by students in the various federal institutions in the country especially at the tertiary level. For instance, public education expenditure in 1962 was 5.6% of GDP and 18.2% of all government expenditure but by 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). Let us recalled that the highest approved national budget of (N8,612 trillion) in Nigeria was recorded in year 2018 and only a paltry sum of about N605.8 billion which represent about 7.05% of the total budget was allocated to the education sector. These figures showed that the government has not been giving the sector the kind of attention it deserved despite her critical role as the drivers of the growth of modern economies. They are also in sharp contrast to UNESCO benchmark of 15 to 20 percent of the total annual budget as contained in the EFA global monitoring reports for 2000 – 2015 (Adedigba, 2017).

Public Health Expenditure:
Public health expenditure consists of recurrent and capital expenditure from government budgets, external borrowing and grants (including donations from global agencies and NGOs), as well as obligatory health insurance finance (WHO, 2008). Nigeria's health transformation agenda is well expressed in the national economic empowerment and development strategy (NEEDS), engineered by the national planning commission (NPC, 2008). 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) opined that the major reasons 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 of health itself. Both health care spending and enhanced health condition are means to an end; the end is improved outputs and output growth.

Berger and Messer (2012) were of the opinion that one of the fundamental ways by which government can modify health care delivery systems is to raise public funding of health care

infrastructure. However, several authors came out with different ideas that affect health care spending. Clement *et al.* (2011) identified demographic and non-demographic factors that influence health care spending. Denton *et al.*(2004) identified structural and behavioural factors that determine health (such as age, family characteristics, profession, earnings and societal support). While Denton and Walters (1999) noted that structures of societal disparity is the most vital determinants of health. In his words Irvin *et al.*(2008) explained that materials circumstances which include factors such as housing and neighbourhood quality, consumption strength and physical work surrounding can influence health conditions.

In recent times, the pattern of federal government expenditure on health showed a fluctuating or unstable patterns over time. For instance, allocations in the 2006 budget of the Ministry of Health stood at ₦38.04 bn, increased to ₦51.17 bn in 2007. Between 2008 and 2011, it reduced to ₦33.53 bn before jumping to ₦60.08 bn in 2014. And in 2017 and 2018, it stood at N55.6 bn and ₦71.11 bn respectively. Overall, Nigeria's annual budget grew more than 20-fold since the nation's return to democracy in 1999, with regrettably little impact on key socioeconomic parameters. Over ₦52.67 tn has been spent by the federal government of Nigeria alone on health between 1999 and 2016 (www.yourbudgit.com)

Theoretical Review
Human Capital Theory:
Human capital theory originated about four decades ago, under the strong and inspiring leadership of Theodore, Schultz, Becker and John Mincer (Bakare and Salami, 2011). The core assumptions of this theory is that investment in human capital is usually dependence on the costs of acquiring the skills and the returns that are anticipated from the investment. Economies that are better off, for example can lower the costs of human capital acquisition for their citizens by subsidizing their education and training costs. Furthermore, more affluent and better-educated economies can shape the taste and preferences of their citizens by instilling in them a high regard for education and a desire to accomplish in school. This translates into a higher rate of returns on knowledge and skills relative to that of citizens from less-advanced economies. Thus, nations play an essential role in creating advantages for their citizens by encouraging them to acquire substantial stocks of human capital. Eventually, it is human capital which has value in labour markets (NPC, 2008). Therefore, the central idea of human capital development theory is that investment in human capital will lead to enhancement in the value of human capital which in turn yield basic physical outputs.

Endogenous Growth Theory:
Economic growth theory which is growth – education investment nexus is rooted in the endogenous growth theory (Romer, 1986, 1990 and Lucus 1988). In its submission, Romer (1986) acknowledged that the economic growth rate is driven by technological change catalysed by human capital, hence the need for human capital accumulation. Comparatively, Romer's endogenous growth model differs from neoclassical because he acknowledged the role of technological change and human capital in growth process solely in the hand of technological change. In the attempt to deal with the limiting capital of the neoclassical paradigm, Romer advocated that human capital should be treated as capital goods which is subject to increasing marginal productivity since human investment can generate positive externalities for the entire economy. That endogenous growth model depends on technological changes and human capital.

It advocates for measure aimed at stimulating economic growth and development. One of such measures of government spending on education can help to boost economic growth. Similarly, Gupta and Chakraborty (2004) in a dual analysis, emphasized that human capital development is fundamental for economic growth to take place. Dual relationship exists between the rich and the poor in the form of capital accumulation mechanism. Just as the rich allocates more time in accumulating knowledge for production, they expend more time in training the poor. Hence, economists consider expenditures on training, education, medical care, research and development (R&D) as investment in human capital. They are so called because people cannot be separated from their skills, knowledge, health or values in the way they can be separated from their financial and physical assets.

The Augmented Solow Growth Model:

This model is an extension of the Solow growth model and it underpinned the framework of this study. The Augmented Solow-growth differs from Solow growth model in that, it includes human capital as a factor that can enhance economic growth. The model also emphasizes that human capital can also be used to explain the differing income levels in different economies. It does not explain human capital being idle but development of the human resource in a country, it highlights that education is a way in which human capital can be better formed as it allows labour to acquire skills, knowledge and competencies that can enhance productivity as well as growth. Makiw, Romer and Weil (1992) presented the human capital augmented growth model of economic growth. They assumed that the economy produced one good output (y). It is produced according to:

$$Y(t) = K(t)^\alpha \, H(t)^\beta \, A(t) \, L(t)^{1-\alpha-\beta} \qquad\qquad (1)$$

Where: α, β E (0, 1), $\alpha+\beta$E (0, 1), and t denotes time. This implies that the production function exhibits constant returns to scale in three factors: physical capital (k), human capital (H) and productivity-augmented labour (AL).

Specifically, physical capital and human capital are assumed to be accumulating factors; that is, the representative agent saves output to have more capital (either physical or human). Their equations of motion are:

$$K^1(t) = S_K Y(t) - \delta(t); \qquad\qquad (2)$$
$$H^1(t) = S_H Y(t) - \delta H(t); \qquad\qquad (3)$$

Where: S_K and S_H are the saving rates for physical capital and human capital respectively. They are exogenously given. Notice that both physical and human capital are assumed to depreciate at the same rate, δ. The equation of motion for Labour (L) and Labour augmented productivity (A) are:

$$L^1(t) = nL(t) \qquad\qquad (4)$$
And $\quad A^1(t)= g^A(t) \qquad\qquad (5)$

Where: n and g are exogenously given growth rates. Since output per worker on the balanced growth path is:

$$\left(\frac{Y(t)^*}{L(t)}\right) = A(t)\, y^*(t) \qquad\qquad (6)$$

Regardless of whether human capital is included, the growth of output per worker on the balanced growth path remains, the rate of technological progress of the growth rate of labour

augmented productivity. Based on the foregoing preposition, Makiw *et al.* (1992) make some important assumptions; that people invest in human capital just like they invest in physical capital, that is, by foregoing consumption and devoting a fraction S_H of their income to the accumulation of human capital (analogous to the fraction S_K invested in physical capital), that human capital depreciates at the same constant rate δ as physical capital and that output(homogeneous good produced in the economy) can be used for either consumption or investment in (physical or human) capital.

Musgrave Theory of Public Expenditure Growth:
This theory was propounded by Musgrave as he found changes in the income elasticity of demand for public services in three ranges of per capita income. He posited that at low levels of per capita income, demand for public services tends to be very low, this is so because according to him such income is devoted to satisfying primary needs and that when per capita income starts to rise above these level of low income, the demand for services supplied by the public sector such as health, education, transport, etc, starts to rise, thereby forcing government to increase expenditure on them. He observed that at the high level of per capita income, typical of developed economies, the rates of public sector growth tends to fall as the more basic wants are being satisfied (Edame and Euturoma, 2014).

Empirical Review
Ojo and Oshikoya (1995) examined the determinants of long-term, growth in selected African countries using the framework of endogenous growth model between 1981 and 1994. The study found human capital as the most relative important factor influencing long-term growth in African countries.

Hinchliffe (2000), while analyzing public expenditure on education in Nigeria using time series data, OLS techniques stressed that low budgeting persists till 2000 when the federal government spend about 2.4% of her Gross National Product (GNP) on education in 2000.

Adenuga (2002) while analyzing government spending on education and health on human capital development in Nigeria using ECM techniques stressed that Nigeria's government spending has been totally inadequate or that amount purported to have been expended on education was not actually spent, while Olaniye and Adam (2002) in their study observed that government expenditure on education and health and the share of total spending to the GDP have been declining.

Wilson and Briscoe (2003) in their study on the impact of education and training found out that increased investment in education is shown to lead to higher productivity and earnings for the individual and similarly; such investment results in significant social rates of return.

Lyakurwa (2007) on his work on the viles of education and health on human capital development reported that human capital development has the capacity to enlarge people's choice and opportunities, improve healthy living through acquired skills and knowledge and eventually enhance growth in the nation's GDP through increased productivity, meaning that education and health are engine room and key drivers in the development of human capital of nations.

Similarly, Nabil *et al.* (2007) reviewed the dynamic effects of public investment in human capital in the Canadian context of population ageing, a computable overlapping generations model

(OLG). The study found a significant effect of a tax-financed increase in public spending on education had a crowded out effect in the short run while higher education contributed immensely to human capital accumulation in the long run and also had negatives effects on population ageing.

Lawanson (2009) examined the role of education and health on human capital development in Nigeria using ordinary least square technique and found that education and health are necessary conditions for human capital development in Nigeria, while government expenditure on health and primary education enrolment had negative effects on growth.

Dauda (2010) using the endogenous growth model reviewed the relationship between government spending on education and human capital development. The study employed enrolment in the different levels of education as proxies for human capital and found out that there is a long run relationship between educational and human capital development in Nigeria with a feedback effects.

Obi and Obi (2010) position in their paper tiled government spending on education and its effects on human capital development (1982 – 2007) posited that by providing new opportunities and expanding the capabilities of people, government spending on education play an imperative role in ensuring productivity and hence a sustainable growth. Lucas (1988), in his work on education and health, a panacea for human capital development draws influence from the ordinary least square analytical techniques. Result revealed that the growth rate of human capital is dependent on the amount of time an individual puts into acquiring skills. Thus, government and multinational investments in education and health result in the development of human capital which has been described as the key determinants of economic development which multiplier effects reflect in economic growth.

The World Bank (2010) on their study on education and health infrastructure on developing economies using Nigeria as a case study discovered that Nigeria has found it difficult to grow her economy in her quest to become a knowledge-based economy because of the challenges faced in the national education system. The organisation, categorized these problems into poor access to education which is evident in high cost of education, poor quality of education, poor ICT infrastructures and poor governmental funding of education.

Adamu (2011) determined the impact of government spending on education and health in Nigeria between 1980 and 2010 using cointegration and error correction mechanism., The study revealed that investment in human capital in form of education and training stimulate economic growth.

Ejere (2011) submit that human capital development is undoubtedly the pilot of any meaningful programme of socio-economic development of an economy. Scholars like Adedeje and Bamedele (2003), World Bank (2010), Barro (1993) and Illegbosa (2013) acknowledge that education is the primary source of human capital development. The works of Oluwatobe and Ogunrinola (2011), Schultz (1993), Adawo (2011), Bloom & Canning (2003) supports health as a component of human capital development.

Kanayo (2013) explored the impact of human capital formation in Nigeria. The study employed ECM as an analytical tool. Findings indicated that investment in human capital in form of education and health impacted significantly on economic growth. The study recommended that

educational institutions as well as health institutions should be restructured and well equip for greater outputs.

Ehimare *et al.* (2014) investigated the Nigerian government expenditure on Human Capital Development. The level of human capital development, which is a reflection of the level of health and education of a nation affect the level of economic activities in that nation. Unit root test was invoked through PP test. Data analysis was conducted using data envelopment analysis involving input-output variable return to scale. Findings revealed that there has been significant reduction in the efficiency of government expenditure since 1990, up till 2011. This result in poor quality and output experienced in the Nigerian education and health sector. They recommended that effort should be made in improving Education and health care delivery which has effect on human capital.

Ogbonna *et al.* (2017) empirically investigate the relationship between government human capital spending and human capital development. Evidence from Nigeria (1990 – 2015). The study adopted ARDL methods. The results reveal that both in the short and long run, government health-spending impact positively though to a very large extent insignificant on human capital development in Nigeria but not so with government education spending. This account for the low human development index we have in Nigeria.

Ngozi and Samuel (2019), investigate government educational expenditure and human capital development in West African countries. The result obtained showed that increase government education and health expenditure have positive and significant impact on primary and secondary school enrollment. The Granga causality showed that there was bidirectional secondary school enrollment. The result also shows that there was bidirectional causality between government educational expenditure and secondary school enrollment. Michael (2017) investigated the effect of human capital investment on economic growth in sub-Saharan African. Evidence from Nigeria, South Africa and Ghana (1980 – 2013). The results indicates that, two out of the three human capital proxy variables, health (GIH) and education (GIE), shows significant positive effect on growth only in Nigeria, while literacy ratio (LR) is insignificantly positive in all countries. Christopher and Utpal (2020) investigated government expenditure on human capital an 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 enrollment rate. Whereas no cointegration between government spending on education and gross enrollment rate at primary and secondary level was observed. The vector cento-regression (VCR) analysis revealed significant impact of expenditure on health care and education on the GDP in the long run through improved human resources.

Stylized Facts of Human Capital Growth in Nigeria
The role of human capital resource in stimulating economic progress has been acknowledged in the literature. Human capital resource has been identified not only as a major growth determinants and a channel to ease poverty but it is also very important in building and improving the quality of human beings in general (Kasim, 2010). The growth focus in Millennium Development Goals (MDGs) is more concentrated as the importance in achieving clear and real progress as an indicator or human capital indicator measured through education and health foundation. Most of the literature highlights the effect of education through human capital investment on economic growth. Moreover, the literature also revealed studies on inter-relationship between human capital and economic progress. Ramirez and Stewart (1998) explain

that although there are bilateral ties between human capital and economic growth, specific factors to link them still lacks in the aspects of systematic exploration. They show that high level human resource capital development will affect the level of economy through population's increase in their capacity, productivity and creativity. A well educated and enlightened population determines their ability to absorb and organise all economic growth resources such as technology usage or technological innovation. Akita and Alisjabbana (2002) explain that areas having quality of human resources are able to cope better when facing an economic crisis. In the work of Wibisono (2001), variables such as educational attainment which is measured as successful completion of education level, life expectancy, fertility rate, infant mortality and rate of inflation. The study shows that human capital in the form of education especially, is the most important contributor to economic progress. Mansur *et al.* (2009) noted that education provides better employment opportunities, and thus, increase the income of an individual. Therefore, education is perceived to be an important factor in human capital development. The study also found that a correlation exists between education investment among women and fertility. In Africa, educated women are able to get higher wages, and tend to have educated children.

Human development has remained unimpressive as shown by the indicators in table 2.1. Over the years, successive Nigeria government recognized the importance of human capital formation in the development process and has embarked on various programmes and projects which led to the establishment of educational and health centres throughout the country. However, in the late 1980s and early 1990s, Federal government spending grew substantially resulting in fiscal crisis, inflation and heavy borrowings, subsequently, through the austerity measures adopted in 1982 and Structured Adjusted Programme (SAP) introduced in 1986, the country attempted to bring down fiscal deficits as part of its stabilization and adjustment programmes often by reducing public spending on across – board basis. These reductions resulted in unprecedented economic and social costs as HCD was neglected with adverse long-term development consequences (Oyinlola and Adams, 2003). Thus, the ultimate goal of economic development which underscore the need to improve the well-being of people were overlooked.

Nigeria HDI Value and Rank:
Nigeria HDI value for 2019 is 0.539 which put the country in the low human development categorizing – positioning it as 161 out of 189 countries and territories.

Between 2005 and 2019, Nigeria's HDI value increased from 0.465 to 0.539, an increase of 15.9 percent. Table 2.1 reviews Nigeria's progress in each of the HDI indicators. Between 1990 and 2019, Nigeria's life expectancy at birth increased by 8 years, mean years of schooling increased by 1.4 years and expected year of schooling increased by 3.3 years. Nigeria GNI per capita increased by about 58.0 percent between 1990 and 2019.

Table 2.1: Nigeria's HDI trend based on consistent time series data and new goal posts

Year	Life Expectancy at birth	Expected year of schooling	Mean year of schooling	GNI per capita (2017 ppp)	HDI value
1990	45.9	6.7		3.109	
1995	45.9	7.2		2.775	
2000	46.3	8.0		2.739	
2005	48.3	9.0	5.2	3.675	0.465
2010	50.9	8.4	5.2	4.636	0.482
2015	53.1	9.7	6.2	5.356	0.526
2016	55.5	9.5	6.3	5.160	0.526
2017	54.0	9.7	6.4	5.032	0.531
2018	54.3	9.7	6.5	4.929	0.534
2019	54.7	100	6.7	4.910	0.539

Source: UNDP (2019) Secondary of human development report for Nigeria (1990 – 2019)

In recent times, renewed attention was paid to the role of HCD in the country's development process and this has prompted the federal government to declare in its 1999 – 2003 economic policy programme that the economy exists for and belong to the people, and at all times, the general well-being of all the people shall be the overriding objectives of the government and the proper measure of performance. This policy statement of the government was further reiterated in the National Economic Empowerment and Development Strategy (NEEDS). The provision of high-quality education and health care to all the country citizens was considered a key element of public policy by all level of government. Against the above background, this study aimed at unraveling, how expenditures of government impact on human capital development in Nigeria spanning from 1981 – 2019.

METHOD RESEARCH METHODOLOGY

Research Design
The research design employed in this research is the ex-post facto research design which according to Kerlinger (1964) defined ex post facto research as that researcher in which the independent variable or variables have already occurred and in which the researcher starts with the observation of dependent variable or variables. In ex-post facto research, the researcher takes the effect (dependent variable) and examines the data retrospectively to establish causes, relationships or associations, and their meanings. The ex-post facto research design is adopted because, our data are time series data. We are only analysing our obtained data for the period (1980-2019).

Analytical or Estimation Techniques
We specify our model base on the Autoregressive Distributed Lag (ARDL) method. Studies on Autoregressive Distributed Lag (ARDL) models date back to the preliminary works of Pesaran and Shin (1999) and Pesaran, Shin and Smith (2001). The preference for this approach relies on the easy estimation of the parameters of the relationship. That is, that both the long run and the short run parameters could be obtained in a single estimation.

The basic form of an ADL (p, q_1, q_2....q_m) model is specified thus:

$$\Theta_t = \sum_{i=1}^{\rho} \delta_\kappa \Theta_{it-\rho} + \sum_{i=0}^{q} \beta_\kappa x_{it} + \mu_t \qquad (1)$$

Where, Θ_t, is the explained variable; x_t, are the vector of explanatory variables in the model which could be endogenous or exogenous; μ_t, is a white noise variable assumed to be serially independent of other variables in the model; (p,q) are the various lags of the variables in the model, $(\delta_\kappa, \beta_\kappa)$ are estimated parameters to their lags κ, $and\ q = 1,2..m$.

Other scholars have outlined other benefits of the Autoregressive Distributed Lag (ARDL) models (Akpan, 2011 and Nkoro and Uko, 2016). The long run relationship of the underlying variables is detected through the F-statistic (Wald test). In this approach, long run relationship of the series is said to be established when the F-statistic exceeds the critical value band. That is, if the computed F-test value lies above the upper bound critical value, long run cointegration relationship exists among the variables. A computed F-test value lower than the lower critical bound value is an indication of no cointegration. Similarly, a computed F test value in-between the two critical bound values are indication of inconclusive analysis (Bassey and Ekong, 2019).

An expansion of the above model to a standard bound testing procedure becomes:

$$\Delta\Theta_t = \delta_o + \sum_{i=1}^{\rho} \delta_\kappa \Delta\Theta_{it-\rho} + \sum_{i=0}^{q} \beta_\kappa \Delta x_{it-q} + \psi_1 \pi_{it-1} + \psi_{2i} x_{it-1} + \mu_t \quad (2)$$

Where, ψs, are the parameters of all the included variables in the model lagged one period, Δ, is the difference operator, other indices are as already defined.

For our human capital development and key government expenditure on education and health expenditures analysis, the long run relationship is specified in equations (3) thus.

$$\Delta HDI_t = \delta_o + \sum_{i=1}^{\rho} \delta_1 \Delta HDI_{it-\rho} + \sum_{i=0}^{q} \beta_0 \Delta Gov\ Edu_{it-q} + \sum_{i=0}^{q} \beta_1 \Delta Gov\ Health_{it-q}$$
$$+ \sum_{i=0}^{q} \beta_2 \Delta GE_{it-q} + \sum_{i=0}^{q} \beta_3 \Delta gfcf_{it-q} + \sum_{i=0}^{q} \beta_4 \Delta gdp_{it-q} + \sum_{i=0}^{q} \beta_5 \Delta\ Ir_{it-q}$$
$$+ \sum_{i=0}^{q} \beta_6 \Delta\ Exc\ Rate_{it-q} + \psi_1 HDI_{it-1} + \psi_2 Gov\ Edu_{it-1} + \psi_3 Gov\ Health_{it-1}$$
$$+ \psi_4 GE_{it-1} + \psi_5 gfcf_{it-1} + \psi_6 gdp_{it-1} + \psi_7 Ir_{it-1} + \psi_8 Exc\ Rate_{it-1} + \mu_t$$
$$(3)$$

Definition of Variables and Wources
Human development index (HDI): A summary composite measure of a country's average achievement in three basic aspects of human development, health, knowledge and standard of living (World Health Organization).

Government expenditure on education (Gov Edu): This is government public spending on education and may include direct expenditure on educational institutions as well as educational related public subsidies given to households and administered by educational institutions. Higher

expenditure on education will increase education infrastructures, improved the quality of education through manpower training and ultimately improves the economy's human capital.

Government expenditure on health (Gov Health): This is the general expenditures of government on health. It also includes private expenditure on health channeled through the government. Basically, allocating more funds to the health sector should make health care presence assessable and affordable for many.

Gross Domestic Product (GDP): GDP is the total market value of all final goods and services product within a given period by factors of production located within an economy.

Government expenditures on other sectors (GE): This is the general government expenditures on other items net of expenditures on education and health. The intuition here is that government expenditures on other things may have spillover effect on human capital development that may be disguised in education and health expenditures.

Exchange rate (Exr rate): This is the rate at which the Nigerian currency (the naira) is exchange for other country's currency.

Interest rate (IR): Interest rate is the percentage of a sum paid on the loan for investment. In the case of government investment, it is the price paid to raise funds for investment such as expenditure on education and health.

Gross fixed capital formation (GFCF): Net increase in the physical assets of the country over a specified period of time.

A Priori Expectation
A priori expectation of government expenditure on key development variables like education and health has the right positive signs as captured in equation 3; $\psi_2 > 0$, and $\psi_3 > 0$, respectively implying that as the government expenditure on education and health increases human capital development proxied by human development index (HDI) increases, hence a direct positive relationship. Other variables such as Gross Domestic Product, Government expenditure on other issues, and gross fixed capital formation are expected to have the right positive sign. However, interest rate is expected to have a negative sign.

Stationarity Test
We used the PP test for stationarity developed by Perron (1997) in this study. There is wider acceptability in the literature that the PP test evaluates the time series properties of the variables in the presence of structural changes at unknown points in time and thus endogenises these structural breaks, an advancement from other traditional diagnostics test. The PP test is specified as:

$$\theta_\alpha^* = \theta_\alpha \left[\frac{\gamma_\circ}{\omega_\circ}\right]^{\frac{1}{2}} - \frac{T(\omega^\circ - \gamma^\circ)[se(\varphi)]}{2\omega_\circ^{\frac{1}{2}}s} \qquad (4)$$

We support this with the DF-GLS test, which possess good size and power properties will also be employed on the variables (Aziakpono and Wilson, 2013). The test statistic is generated from the parameters gotten from the following equation;

$$\Delta y_t^d = \vartheta y_{t-1}^d + \delta_1 \Delta y_{t-1}^d + \dots + \delta_p \Delta y_{t-p}^d + \mu_t \qquad (5)$$

Where, y_t^d is the detrended data series; Δ is the difference operator; $\vartheta, \delta_1, \delta_p$ are parameters to be estimated and μ_t is the error term.

Data Analysis

The result of the PP and DF-GLS unit root test are reported in Table 4.1. The PP and DF-GLS indicate that all the variable were non-stationary at levels apart from gross fixed capital formation (gfcf) which was stationary at level, but others such as gross Domestic product (GDP), human development index (HDI), government expenditure on other sectors (GE), government expenditure on education (Gov Ed), government expenditure on health (Gov health), interest rate (Ir) and Exchange rate (Exc Rate) were stationary at first differences. This implies that the null hypothesis of non-stationarity for all the variables apart from gfcf which was rejected at levels, other were rejected at first difference of each series. Most importantly, the result shows that we can confidently apply the ADRL methodology to our model.

Table4.1: Unit root test results

Variables	P P test			D F-GLS test		
	Level	1st diff	p-value	Level	1st diff	p-value
gdp_t	7.0946			0.1704		
Δgdp_t		-8.5407***	0.0000		-7.5775***	0.0000
HDI	0.6611	-5.6335***	0.0002	-0.1487	-4.9076***	0.0002
Gov Health	3.2579	-5.0145***	0.0000	0.3734	-4.5557***	0.0003
Gov Edu	0.9422	-3.0523**	0.0479	0.7400	-3.1756***	0.0049
GE	-0.77405	-14.7487***	0.0081	-0.1556	-8.8801***	0.0000
Ir	-0.1570	-3.7869***	0.0001	-1.0496	-2.0353**	0.0324
Exc Rate	1.9314	-3.2645**	0.0242	1.3204	-3.3447***	0.0002
$gfcf_t$	-2.5932*	-9.1547***		-3.3152***		

Source: Author's Computation extracted from Eviews 10.0
Superscripts *, ** and *** denotes rejection of the null hypothesis of existence of unit root at 1%, 5% and 10% significance level. Model includes intercept only with lag selected based on Akaike information criterion

The ARDL bounds test for the presence of long-run relationship in equation 3 are reported in Table 4.2. The bound F. statistics for cointegration test yields evidence of a long run relationship between human capital development and government expenditures on key development issues like education and health. The computed F-value of 7.8 is greater than the lower and upper bound of the 5% critical values resulting in the rejection of the null hypothesis of no long-run relationship between the examined variables. This evidence rules out the possibility of estimated relationship being spurious.

Table 4.2: Bound Test result

Test Statistic	Value	Signif.	I(0)	I(1)
		Finite Sample: n= 38		
F-statistic	7.8039	10%	2.277	3.498
K	8	5%	2.73	4.163
Actual Sample size	38	1%	3.864	5.694

Source: Author's Computation extracted from Eviews 10
Note: The lag structure was selected based on Akaike information criterion. K is the number of regressors.

Table 4.2 shows that under a finite sample size of 38, the calculated F-value of 7.8 greater than the lower and upper bound values at 5 percent level of significance mean that the null hypothesis of no level relationship cannot be accepted. The implication is that there is an investigable relationship between human capital development and government expenditure on Education and Health that should be investigated. Thus, we proceed to investigate the relationship.

First, we examine the lag length appropriate for the relationship and present the result in Figure 4.1. Figure 4.1 shows 20 top lag selection after a random analysis of over 2500 different lag specification is systematically generated. From Figure 4.1, the best lag specification for the relationship is ARDL (1,2,3,2,2,2,1,2,) based on Akaike Information criteria. This lag length was adopted for the study.
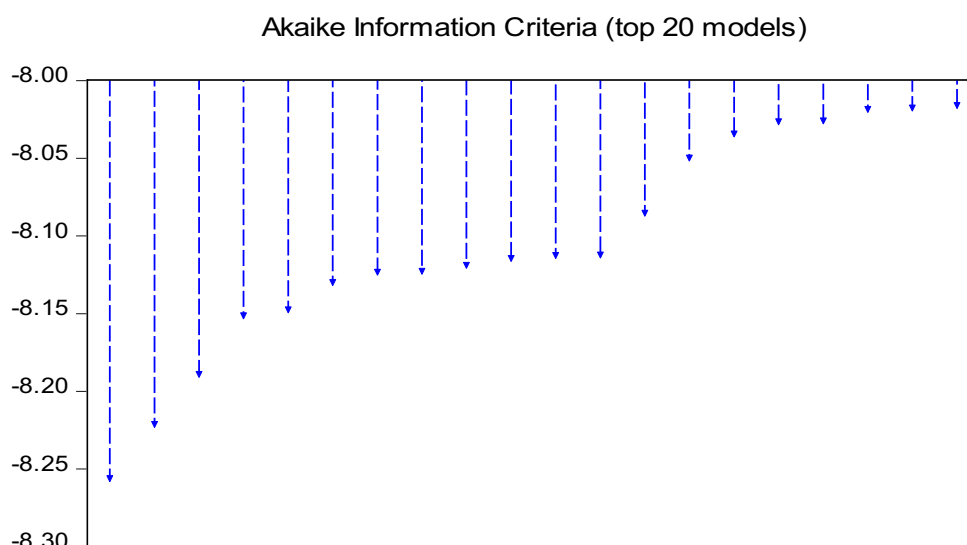

Figure 4.1: Model Lag Selection
Selected lag: ARDL (1,2,3,2,2,2,1,,2,)
Selection Criteria: Akaike Information criteria
Source: Author's Computation

We estimate our ARDL model using the lag specification adopted above and present the short run result in Table 4.3. Table 4.3 shows that government expenditure on Education exerted statistically significant positive effect on human capital development (HDI) at significant magnitude throughout the short run period. At least a unit rise in government expenditure on education improves human capital development by 0.30 units in the short span. Cumulatively, the short run effect of education expenditures on human capital development is approximately 32 percentage point. This outcome complements Obi and Obi (2010), who found that rising expenditure on education raised human capital for future development and differed from the results of Adenuga (2002) who had a negative impact of expenditure on education on the growth of human capital in Nigeria.

However, government expenditure on health weakens human capital development at the current period. A percentage rise in government expenditure on health reduces human capital development by 0.2 percent approximately in the current short run period. However, such effect will not be significant statistically. As the short run period prolong, government expenditure on health produced positive effect on human capital development that will be significant statistically over time. Cumulatively, a percentage rise in government expenditure on health will produce at least 2 percent improvement in human capital development approximately. Equally, total

government expenditure on other sectors net of education and health exerted statistically significant positive effect on human capital development in the short run. A percentage rise in general government expenditure net of education and health will go a long way in boosting human capital development by at least 3.4 percent cumulatively within a short time.

As expected, a rise in interest rate will reduce human capital development. As our result shows, a percentage rise in interest rate will dipped human development index by approximately 1 percent in the short run. the implication here is that a rise in the cost of funds reduces government expenditure, including government expenditure on EDU & Health, thereby dipping human development index and statistically significant.

The effect of capital stock as proxied by gross fixed capital formation on human capital development is mixed in the short run. An initially declining insignificant effect of capital stock on human capital development soon grows into statistically significant positive effect as time passes (This shows that gfcf affects HDI after a lag). Equally, both exchange rate and the general economic performance also produced statistically significant negative effect on human capital development

Table 4.3: Short run Estimates

Dependent Variable: HDI

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
HDI(-1)	0.551891	0.320710	1.720845	0.1236
Gov Edu	0.024275	0.010910	2.225087	0.0567
Gov Edu(-1)	0.300105	0.062963	4.7663707	0.0055
Gov Health	-0.001540	0.002660	-0.579009	0.5785
Gov Health (-1)	0.003073	0.003425	0.897310	0.3958
Gov Health (-2)	0.014588	0.004723	3.088440	0.0149
Ge	0.021218	0.008988	2.360627	0.0459
Ge (-1)	0.012743	0.011699	1.089306	0.3077
gfcf	-0.333304	1.110505	-0.300205	0.7790
gfcf (-1)	9.320701	3.450701	2.701102	0.0539
Ir (-1)	-0.006568	0.002857	-2.298422	0.0302
Exr rate	-0.000163	0.000103	-1.589640	0.1379
Exr rate (-1)	0.000205	0.000113	1.820580	0.0937
gdp (-1)	-0.002299	0.001140	-2.015687	0.0668
Ecm (-1)	-0.156882	0.047856	-3.278209	0.0021

R-squared	0.78	Prob F-stat		0.0289
Adjusted R^2	0.70	Mean dependent var		0.000579
Wald F-stats	6.5757	S.D dependent var		0.010797
Jarque-Bera	1.5967	Akaike Inf. criterion		2.1481
Durbin Watson Stats	1.99	SC		3.1675

Source: Author's computation extracted from Eviews 10.0

Generally, our study is a good fit as over 70 percent of variations in the dependent variable is explained by the explanatory variables in the system. Our DW statistic of 1.99 shows that the system is free of autocorrelation.

The long run result of government expenditure on health and education on human capital development is reported in Table 4.4.

Generally, our study is a good fit as over 70 percent of variations in the dependent variable is explained by the explanatory variables in the system. Our DW statistic of 1.99 shows that the system is free of autocorrelation.

The long run result of government expenditure on health and education on human capital development is reported in Table 4.4.

Table 4.4: Long run estimates

Dependent Variable: HDI

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Gov Edu	0.0941	0.0316	2.9778	0.0406
Gov Health	0.0728	0.0485	1.5018	0.2075
GE	0.0253	0.0246	1.0276	0.3622
$gcfc_t$	0.0218	0.0153	1.4262	0.2270
gdp_t	-0.1334	0.0360	-3.7057	0.0207
Ir	-0.0222	0.0105	-2.1096	0.0451
Exc Rate	-0.0198	0.00561	-3.5294	0.0243
C	0.5639	0.0907	6.2145	0.0034

Source: Author's computation extracted from Eviews 10.0

The result shows that in the long run, expenditure on education continues to impact positively on human capital development at statistically significant levels. A percentage rise in expenditure on education will increase human capital development by not less 9 percentage point. Equally, it is only in the long run that expenditure on health will deliver a steady positive effect on human capital development even when the effect will be marginal statistically. At least a unit rise in expenditure on health will produce 0.1 unit increase in human capital development approximately. Cumulatively, a unit increase in expenditures on health and education may improve human capital development by at most 16 percent in the long run. This has implications for development. Development is a composite issue and should be discussed as such. Discussed at the individual level, development may be slow, sluggish or even meaningless. However, considered at an aggregate or composite level, much larger progress may be deciphered. Perhaps such duo impact was what motivated Kanayo (2013) to agitate for higher investment in education and health as a joint venture for economic growth. The short run negative effect of IR continues to the long run. In the long run, the effect is more rather pronounced, as percentage rise in IR will reduce human development index by more than 2 percent and statistically significant.

Government expenditure on other things in the economy continues to show positive outlines on human capital development in the long run. However, its effect will be statistically insignificant. Following the same trend, new additions to physical structures in the economy(gross fixed capital formation) also produce statistically insignificant positive effect on human capital development of not above 2 percent at every single change. Gross Domestic Product and Exchange rate both exerted statistically significant negative impact on human capital development that draws extensively from the short run.

Stability Checks

Figures 4.2 and 4.3 present the cumulative sum and the cumulative sum of squares respectively of the analysis of expenditures on health and education on human capital development. When the validity of our results were investigated and reported on Figures, we could not reject the hypothesis of stable parameter estimates. The cumulative sum test that identifies systemic changes in the coefficients of the regression, shows that our parameter estimates falls within the 5 percent confidence interval. The implication of this result is that our estimates are stable as there is no indication of instability arising from the figure.
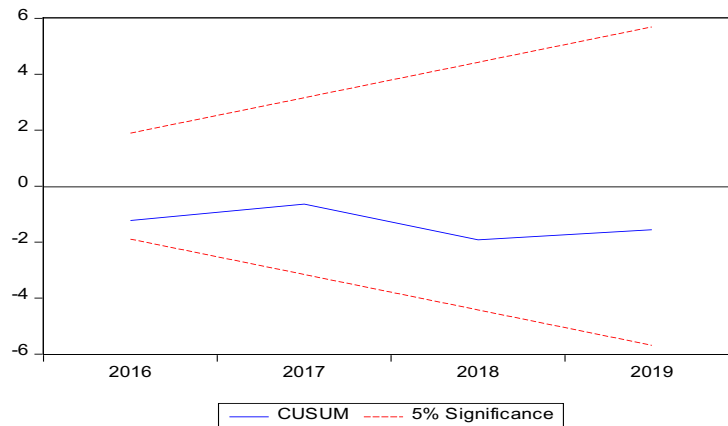

Figure 4.2: Stability results for government expenditures on human capital development (Cumulative sum test)
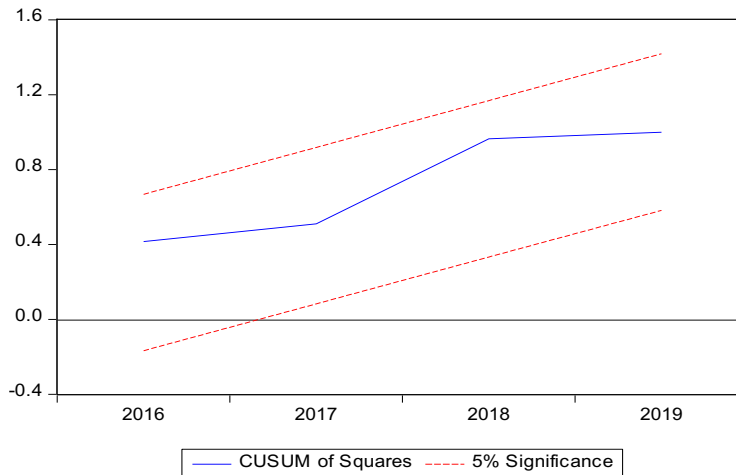Source: Author's extraction from Eviews 10.0

Figure 4.3: Stability results for government expenditures on human capital development (Cumulative sum of squares test)
Source: Author's extraction from Eviews 10.0

SUMMARY, CONCLUSION AND RECOMMENDATIONS

In investigating the effect of government expenditure on human capital development for the period 1981 – 2019, we modeled govt. Exp on education (Gov Edu), government expenditure on health (Gov Health), Gross Domestic Product (GDP), Government Expenditure on other sectors (GE), Exchange rate (Exr rate) and Gross fixed capital formation (gfcf) against human Development Index (HDI). The study employed the PP and DF-GLS unit root test and ARDL Bound test to estimate the long run relationship between human capital development and government expenditures on key development issues like education and health. It revealed that government expenditure on education exerted statistically significant effect on human capital development in

Nigeria both in the long run and short run implying that public expenditure on education contributes to increase in human capital development in Nigeria. However, government expenditure on health weakens human capital development in the short run, but as the short run period prolong, government expenditure on health produced a statistically significantly positive effect. Moreover, the effect of capital stocks proxied by gross fixed capital formation grows into statistically insignificant positive effects as time passes. Equally, both exchange rate and general economic performance also produced statistically significant negative effect on human capital development.

The structural stability tests as presented in figure 4.2 and 4.3, both CUSUM test and CUSUM square test showed that the model is stable and there is no structural change in the coefficients as vectors of the coefficients remain constant all through the period because the blue lines are between the red lines at 5% level of significance, hence we accept the null hypothesis of no structural change in the coefficients.

On the basis of the result, the study concludes that cumulatively, expenditures on education and health may improve human capital development by at most 16% in the long run. Thus, they should be composite consideration in budgeting, allocation and implementation of expenditures on human capital development. This has the tendency of allowing the effect of any expenditure on human capital development to be seen and felt.

Recommendations
1. There should be a balanced allocation of funds with adequate attention paid to the Education sector since this has the tendency of improving the quality of human capital at significant levels. Education allocation at the present should have at its back education security given the current reality in the education sector.
2. Equally, we recommend significant allocation to the health sector since there could be long term positive effect of such expenditure. Again, talking from the position of current realities, this will present a proactive stance in militating unexpected health situation like the case of covid 19.
3. We strongly recommend for composite consideration in the budgetary allocation and implementation of expenditures on human capital development. This has the tendency of allowing the effect of any expenditure on human capital development to be seen and felt.
4. From the position of this paper, a fall in the exchange rate weakens human capital development, we therefore proposed revenue diversification for the country for improved exchange rate position. In this case, local content production is suggested since it will also reduce dependence on foreign production and boost human capital development.

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