Quest Journals
Journal of Research in Humanities and Social Science
Volume 14 ~ Issue 4 (April 2026) pp: 83-108
ISSN(Online):2321-9467
www.questjournals.org

Research Paper

Human Capital Development and Economic Growth in Nigeria

Christopher Nyong Ekong &Victor Ime Joseph
Department of Economics, University of Uyo, Uyo

Abstract
The study empirically investigated the effect of Human Capital Development on economic growth in Nigeria using secondary data from 1985 to 2022. The objectives of this study were to examine the effect of Human Development Index (HDI) on economic growth in Nigeria, to determine the effect of government expenditures on health and education on economic growth in Nigeria, and to examine the disaggregated effect of government's capital and recurrent expenditures on education and health on Human Development Index (HDI) in Nigeria. To achieve the objectives. The study employed the auto-regressive distributive lag technique (ARDL) model and Ordinary Least square (OLS) technique to analyze data obtained. The unit root stationarity test and the Augmented Dickey-Fuller (ADF) statistics were adopted to measure the stationarity of the data The results of our findings reveal that human capital as captured by HDI did not have a significant effect on economic growth in Nigeria during the study period. Also, government expenditures on education and health equally had an insignificant effect on HDI, which could have led to growth. In addition, all-of-government expenditures in terms of capital and recurrent impacted insignificantly on HDI. Among the recommendations were that the government should prioritize investments in skills development programs that are aligned with the needs of the labour market can help improve the quality of human capital in Nigeria and enhance the country's competitiveness and economic growth in the long term.
Keywords: *Human capital development, economic growth, government expenditure, human capital development*

Received 08 Apr., 2026; Revised 12 Apr., 2026; Accepted 18 Apr., 2026 © The author(s) 2026. Published with open access at ***www.questjournals.org***

I. Introduction

Human capital development serves as a key foundation for driving productivity and economic growth in nations. Human capital has been defined as the stock of knowledge, habits, social and personality attributes, including creativity, embodied in the ability to perform labourso as to produce economic value (Becker, 1964). Oluwatobi and Ogunrinola (2011) cited Adam Smith's 1776 treaties on the wealth of nations in defining human capital as the acquired and useful abilities of all inhabitants or members of a society. In the words of Ilegbinosa (2013), human capital is the inherited and acquired abilities of labour with education being the primary source of acquiring these abilities. Schultz (1961) defines human capital as a tool for enhancing competitive advantage through processes such as training, education and skill acquisition. Schultz (1961) as cited by Ijaiya and Ijaiya (2004), highlighted five ways human capital can be developed to include (i) through health care and facilities, (ii) on the job training, (iii) formally organized education at the elementary, secondary and higher levels, (iv) studyprogrammes for adults, and (v) the migration of individuals and families to adjust to changing job opportunities. This is not merely a theoretical assertion; rather, it is a practical necessity grounded in the collective skills, knowledge and intangible assets of individuals that are critical to bring forth economic value creation. The success of any productive program, including technological advancements, relies on human innovative ideas and creativity (Adelakun, 2011). In this context, human capital development becomes crucial for achieving sustainable growth and economic welfare.

Recent discourse on global economic disparities emphasizes the pivotal role of human capital in steering nations towards prosperity (World Bank, 2020). The assertion that "human beings are the most important and promising source of growth in productivity and economic growth" resonates with the contemporary emphasis on the knowledge economy (Omodero, 2019). In this digital era, where technological advancements and innovation propel economies, the significance of a well-developed human capital cannot be overstated. As the global economy shifts towards knowledge-based sectors, skills and human capital development, nations with skilled and educated populace are better positioned to navigate the complexities of a rapidly evolving global landscape (OECD, 2016).

Ranis (2004), cited in Omolara (2017), argued that for long term development to be achieved, Human Capital Development is a necessary prerequisite. There are three types of capital that any corporate organization uses: intellectual capital, financial capital (investments), and physical capital (Obeidat, 2016). A part of intellectual capital is also thought to be human capital. It encapsulates human-related factors like knowledge, skills, experience, sufficiency, business quality, employee relations, emotional intelligence, entrepreneurship, flexibility, employee loyalty, employee satisfaction, education, and creativity and serves as a representation of investments made in people (Isola and Alani, 2012). The role of human capital stands as a fulcrum, lacing together the threads of knowledge, skills and innovation. Hadir and Lahrech (2015) aptly characterize humans as the most valuable assets in both developed and developing nations, emphasizing the need for proper management and effective utilization of these assets for development. The strategic harnessing of this invaluable resource, known as human capital, holds the key to unlocking the doors of progress and sustainable economic growth.

However, the journey towards harnessing the full potential of human capital is not without its challenges, particularly in the context of developing countries. Despite being endowed with abundant natural and human resources, the classification of Nigeria, for instance, as a less developed country (LDC) is largely based on its level of human capital development and per capita income. Nigeria contends with the paradox of substantial investments in education and health yielding insufficient evidence of growth-promoting externalities, such as a sustainable human capital formation (Ndiyo, 2007). The dichotomy between the perceived benefits of education and health expenditures and the reality of deepening social inequalities, coupled with the myriads of social challenges within the Nigerian school and health systems, raises crucial questions about the effectiveness of current economic strategies.

Nigeria, as a developing country in Sub-Saharan Africa, has made efforts to enhance human capital through investments in education and health. However, these initiatives have been marred by corruption and inadequate funding leading to undesirable consequences for the development of high-quality human capital (Ogbeifum and Olisa, 2001). Previous programs, such as the Universal Basic Education (UBE) and Universal Primary Education (UPE), National Health Insurance Scheme (NHIS), etc., faced challenges such as shortage of qualified teachers, trained and qualified medical professionals, under-employment, benefit capture syndrome, corruption, etc. These hinder the nation's progress in human capital development. Hence, a comprehensive review of the Nigerian economy is necessary to understand the challenges and opportunities in human capital development, which is crucial for breaking the cycle of poverty, low productivity, and stagnation.

The pivotal role of human capital in unlocking the growth prospects is further exemplified by experiences of countries such as the Asian Tigers (Hong Kong, Taiwan, South Korea, Singapore) which witnessed remarkable improvements in productivity and economic performance through strategic investments in education and healthcare sectors (Kairoet al., 2017). These investments underscore the critical nature of human capital development in fostering economic progress and sustainability. Additionally, scholars like Smith (1776) emphasize the significance of education and health in augmenting human productivity and catalyzing national development. As the global economy evolves, nations are increasingly recognizing the paramount importance of human capital in driving innovation, productivity, and economic growth. Romer (1990) accentuates the economic efficiency derived from investments in human capital, emphasizing its role in fostering innovation, creativity, and overall productivity. Development economists view human capital as consisting of education, health, and other human abilities that can enhance productivity. Lawanson (2009) points out that health and education collectively enhance the productivity of individual members of society. Researchers such as Torruam et al (2014) have shown that the level of human capital development – which is a reflection of the level of health and education of a nation – affects the level of economic activities. It becomes plausible therefore to conclude that education is a decisive factor for human capital (Asaju, 2012), with sound health also being an important element. Hence, the effect of human capital development on economic growth in Nigeria cannot be overstated.

1.2 Statement of the Problem

As Sen (1997) and Sachs (2005) have emphasized, human capital development is fundamental to economic growth and social progress. It involves a robust education system that equips citizens with relevant skills, a well-funded healthcare system ensuring a healthy workforce, and targeted policies to promote entrepreneurship and innovation. Recognizing the importance of human capital development in propelling economic growth, the Nigerian government has implemented various initiatives over the years. These initiatives focus on education, healthcare, and skill acquisition, which are critical components of human capital development. The Nigerian government has introduced Programs like Universal Basic Education (UBE), the National Health Insurance Scheme (NHIS), National Economic Empowerment and Development Strategy (NEEDS) and social intervention programs like N-Power to target poverty alleviation and youth empowerment and vocational training centers aim to enhance literacy, improve healthcare access, and provide employable

skills (World Bank, 2020). Additionally, there has been an emphasis on technical and vocational education to equip youths with marketable skills while expanding healthcare access to reduce mortality rates.

Over the years, both governments recurrent and capital expenditures in education and health sectors have increased significantly, reflecting the government's commitment to driving growth through human capital development (Onaboteet al., 2024).

Despite these efforts and increased government's expenditures on the indices of human capital particularly in education and health, Nigeria's economic growth has not responded positively to increased government's expenditures on human capital development. This contradicts established economic theories that suggest a direct relationship between human capital investments and economic growth (Lipset, 1959; Rostow, 1960; Schultz, 1961; Becker, 1975; Romer, 1986; and Lucas, 1988). Challenges such as inadequate funding, corruption, poor policy implementation, and infrastructure deficits have limited the effectiveness of these initiatives. Many Nigerians still face barriers to quality education and healthcare, resulting in a lack of a skilled workforce, low productivity, and high unemployment rates (UNDP, 2021).

This persistent anomaly between investment in human capital development and its expected economic outcomes motivates this study. It seeks to empirically assess the relationship between human capital development-proxied by the Human Development Index—and economic growth in Nigeria to propose strategies to enhance its impact on economic growth.

1.3 Objectives of the Study

The main objective of the study is to empirically investigate the effect of human capital development on economic growth in Nigeria.

The specific objectives include to:

i. Examine the effect of Human Development Index (HDI) on economic growth in Nigeria.
ii. Determine the effect of government expenditures in health and education on economic growth in Nigeria.
iii. Examine the disaggregated effect of government's capital and recurrent expenditures in education and health on Human Development Index (HDI) in Nigeria.

1.4 Research Questions

Given the study's research objective, the research questions of interest are as follows:

i. What is the effect of human development index on economic growth in Nigeria?
ii. What is the effect of government expenditures on health and education on economic growth in Nigeria?
iii. What is the disaggregated effect of government's capital and recurrent expenditures on education and health on human development index in Nigeria?

1.5 Significance of the Study

This study significantly deepens our comprehension of the important role that human capital development plays in steering sustainable economic growth in Nigeria. The study is beneficial to key stakeholders in economics discipline. It has contributed substantiated insights in their pursuit of economic stability and comprehensive development within Nigeria. It provides evidence-driven recommendations which can guide decision-makers in the formulation of more precise and context-aware human capital developmental strategies. The disaggregation in objective three helps us to discover the expenditure type that most significantly influence human capital. Furthermore, this study extends to the broader academic realm by enhancing the existing body of knowledge regarding human capital development as a tool for steering economic growth.

1.6 Scope of the Study

The study attempts to empirically investigate the relationship between human capital development and economic growth in Nigeria, using secondary data from 1985 to 2022. The choice of the above period is also necessitated by the availability of data for the research work. In the course of this research work the researcher relied on the works of other scholars in the area of human capital development, academic journals, articles and the internet.

II. Literature Review

2.1 Conceptual Literature

2.1.1 Human Capital

The concept of human capital consists of skills, knowledge and health that people invest in and accumulate throughout their lives, enabling them to realize their potential as productive members of the society. Stiglitz and Boadway (1994) explain the concept to mean the stock of accumulated skills and experiences that make workers more productive. Barney (1995) opines that the term "human capital" refers to all the

experiences, skills, judgments, abilities, knowledge, contacts, risk-taking and wisdom of individuals and associates within an organization.

The significance of human capital extends beyond tangible assets, with scholars increasingly recognizing its distinct value and its crucial role in achieving economic growth (Adebiyi, 2006). Similarly, Frank and Bernanke (2007), defines human capital is an amalgamation of various factors such as education, experience, training, intelligence, energy, work habits, trustworthiness, and initiative. Folloni and Vittadini (2010) emphasized the pivotal role of human capital in the economic development of nations. Aluko and Aluko (2012), views human capital is the abilities and skills of human resources of a country. The comprehensive nature of human capital is evident in its inclusion of knowledge and skills accumulated throughout life, covering education, training and work experience (Romele, 2013).

As defined by Kenton (2023), Human capital encompasses the financial or monetary value associated with employees' expertise and skills. This includes factors such as education, aptitude, cognition and health, contributing to the high rating of workers in the workplace.

This perspective aligns with the understanding that human capital represents a continuum, spanning childhood to old age, and is essential for the survival and progress of modern societies. This broad definition emphasizes the multifaceted nature of human capital, acknowledging its diverse components that collectively influence a worker's value. In view of the foregoing definitions, therefore, the term 'human capital' simply implies the aggregate economically productive human population available in a country. In order words, it refers to the wealth of manpower or human resources with requisite skills, knowledge and training that can be transformed into factor of production for the purpose of accomplishing the goals of a nation in terms of meeting its steady demands for developmental goods and services (Ifejika, 2017).

Jhingan (2007) aggregated human capital development as education or schooling, training and health care delivery. The integral role of human capital in economic growth, particularly in a developing nation like Nigeria, underscores the need for a comprehensive and strategic human capital development. Investments in education, healthcare, and supportive infrastructure are imperative for harnessing the full potential of human capital, promoting economic growth, and achieving sustainable development.

2.1.2 Human Capital Development

The concept of human capital refers to the abilities and skills of human resources of a country, while human capital development refers to 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 an economy (Okojie, 1995). AyerteyOdonkoret al. (2018) emphasized that human capital refers to the process of acquiring and increasing the number of individuals possessing skills, good health, education and experience critical for economic development. In the works of Torruam and Abur (2014) human capital development can be seen to mean developing skills, knowledge, productivity and inventiveness of people through the process of human capital formation. Human capital encompasses the production factors embedded in human beings and which they use to create goods and services. These factors include knowledge, social and personal attributes, creativity, skills, habit, experience, intelligence, moral, character and so on. They, mostly, are obtained through education, training and re-training (including on the job training), migration, good quality information, health and many more.

2.1.3 Human Development Index

Human development index is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and having a decent standard of living. It is the combination of "Life Expectancy Index", "Education Index" and "Income Index" that makes the human development index.

Biswas and Caliendo (2002) opined that Human Development Index (HDI) assesses how well countries are doing in terms of non-income measures. It calculates the simple average of life expectancy, education and income indexes. The link between economic growth and Human Development Index can only be sorted out in comparison of basic life indexes for more detailed information which cannot be gotten in studying yearly gross domestic product (GDP). Graham (2010) defined HDI as a simple statistic of life expectancy, education and per capita indicators which are used to rank countries based on human development. HDI is a three-dimensional tool used in measuring Human Development. Kovacevic (2011) and Graham (2010) opined that HDI was conceived using three basic dimensions and they are longevity (long and healthy life), education (knowledge) and Living standards (a decent standard of living). The Life expectancy index reveals the standard of health of the population in the country; education index reveals the educational standard and the literacy ratio of the population; and the income index reveals the standard of living of the population.

If Human Development Index increases, there is higher rate of human capital formation in response to higher standard of education and health. Similarly, if Human Development Index increases, per capita income of

the nation also increases. Implicitly, Human Development Index reveals that higher the human capital formation due to good standard of health and education, higher is the per capita income of the nation. This process of human development is the strong foundation of a continuous process of economic development of the nation for a long period of time. The above indices of Human Capital development (health, education and quality of Standard of living) are directly related to Human Capital formation within the nation and it shows a positive correlation between human capital formation and economic growth. If all these indices have the rising trend over a long period of time, it is reflected into rising trend in Human Development Index, which in the long run lead to economic growth of that country and vice versa.

2.1.4 Challenges of Human Capital Development in Nigeria

The challenge of human capital development for a developing country like Nigeria is enormous. This is in view of how far and ahead the rest of the world is and the amount of efforts and resources needed to catch up with them. Nigeria's high population, vast socio-cultural diversity, yet to mature political culture and the great hope reposed on her to emancipate the black-race makes the challenge even more critical for us. The following are some of the challenges of human capital development in Nigeria:

i. **Low Rating in Human Development Indices:** Nigeria's socio-economic performance and rating in human development indices which is a reflection of its human capital status is low and undeserving of a country of huge natural endowments and human capital potentials. Nigeria's population is over 200 million, rich in biodiversity and fast arable land in addition to abundant natural and mineral resources including crude oil and natural gas. With all these endowments Nigeria should have a strong and vibrant economy and be among the rich countries of the world, have at least a medium quality life index and well above average of human development indices. Unfortunately, this is not the case as Nigeria is grouped among poor under-developed countries. For example, Human Development Report ranked Nigeria 161 among the 193 countries rated with an average HDI value of 0.5415 between 2019-2022. By interpretation, Nigeria is only better off than 32 countries in the Measurable Human Development Indices (HDI), and by implication in the quality of life of citizens. The major indices considered in the report include: Economic performance (Gross Domestic Product (GDP)), Gross National product (GNP), and per capital income), life expectancy status, health risks and technology diffusion and use.

ii. **Brain Drain:** Brain drain or skilled labour migration according to the United Nations definition is defined as a one-way movement of highly skilled people from developing countries to the developed countries that only benefits the industrialized countries. Human Development Report (2022), estimated that more than 21,000 Nigerian doctors are participating in the United States whereas there is a dearth of medical practitioners in the nation's health care system. This situation repeats itself in many other disciplines and professions. The gap in the number of professionals trained and produced and the number engaged can be accounted for by "Brian Drain", low capacity utilization and unfavorable working environment. Our best brains have been lost to other countries due to unemployment and poor remunerations. The negative implications and effect of this in Nigeria's human capital development are devastating. This is a huge challenge to the country that works to be among the developed nations of the world in 2030.

iii. **Underemployment:** One of the Nigeria's problems is poor human capital development and utilization policies encompassing balanced and progressive educational development and the creation of an enabling environment for the full and useful engagement of products of the education system. It should be noted that merely turning out large number of graduates is not enough. Graduates must be empowered and supported by enabling polices and operating environment, to be competent service providers, job and wealth creators. The products of our educational system are underemployed due to non-availability jobs and in unconducive environment for job creation and self-employment. Underemployment includes both open and disguised unemployed. Open unemployed are those who are working less than the normal hours. Disguised unemployed are those whose contribution to output is less than what they can produce by working for normal hours of work per day (Jhingan, 2007). Again those who specialize in particular areas divert their skills to other areas where they did not have training or education. Some take to jobs less that than the ones they are qualified for.

iv. Another major barrier to the accumulation of human capital in Nigeria is large-scale infrastructural deficits in the educational institutions. This problem also has roots in the poor pattern of government expenditure on education. A more disturbing fact is that large proportion of the meager allocations to the educational sector in Nigeria goes into recurrent expenditure, that is, payment of salaries, allowances, emoluments, personnel welfare among others, without substantive attention to infrastructural development and related important capital intensive projects.

v. Poor curriculum implementation is a problem in the Nigerian education system, which is a major producer of human capital. With dearth of teachers, equipment, workshops and other vital resources required for teaching and learning, most vocational and technical subjects in the curriculum of secondary schools cannot

be taught in a large number of public schools. Teaching of science subjects is also adversely affected by inadequate resources. Public higher education institutions are not exempted from this general decay. Okoroma (2006) confirms this state of affairs in the Nigerian education system. The situation has not changed amply from what it was in 2003. That is why the capability of human resources to serve as real agents of national development is seriously impaired in the country. Lack of adequate learning facilities constitutes the most major challenge to the capacity of Nigeria's educational institutions to groom and produce valuable manpower, especially at the secondary and tertiary levels.

2.2 Theoretical Literature

Several theories have been proposed in an attempt to understand the impact of human capital on economic growth including the following: Endogenous Growth theory, Human Capital theory and Modernization theory.

2.2.1 Endogenous Growth Theory

The Endogenous Growth Theory, along with the Augmented Solow-Swan Theory, offers valuable insights into the relationship between human capital accumulation and economic growth in Nigeria. The Augmented Solow-Swan Theory, as proposed by Ogunniyiet al. (2017), extends the traditional Solow growth model by integrating human capital as a critical determinant of output growth. This modification acknowledges the pivotal role of human capital, particularly through education, in shaping the income levels of economies. According to the theory, education serves as a catalyst for enhancing human capital, enabling the workforce to acquire skills, knowledge, and competencies that contribute to heightened productivity and output growth. Attributed to Mankiwet al. (1992), the human capital augmented Solow model (Equation 2.1) is formulated through the Cobb-Douglas production function.

$Y(t) = K(t)^{\alpha} H(t)^{\beta} A(t)^{1-\alpha-\beta} L(t)^{1-\alpha-\beta}$ Equation 2.1

Where Y is the Houtput level, K is physical capital, H is human capital, A is productivity-augmented labor, and L is labor.

This equation reflects a perfectly competitive Cobb-Douglas production function, assuming identical firms and a representative agent within the economy. The model further considers the accumulation of physical and human capital over time, expressed in Equations 2.2 and 2.3.

$L(t) = nL(t)$ Equation 2.2

$A(t) = gA(t)$ Equation 2.3

Where n and g represent exogenous growth rates.

Despite the incorporation of human capital in the growth equation, the growth rate of output per worker on the balanced growth path remains "g", indicating the rate of technological progress or labor-augmenting productivity growth. This characteristic aligns the human capital augmented Solow model with the standard model, suggesting similar long-run growth experiences across nations, irrespective of their technological endowments. Mankiwet al. (1992) underscored the significance of human capital investment, asserting its equivalence to investments in physical capital. They posit that human capital depreciates at a constant rate similar to physical capital and advocate for the allocation of output towards both consumption and investment in physical and human capital development. The introduction of human capital into the model reflects the intricate interplay between these forms of capital and their collective impact on economic growth.

Transitioning to the Endogenous Growth Theory, pioneered by economists such as Romer (1986), Lucas (1988), and Rebelo (1991), this framework represents a departure from the neo-classical growth model by rejecting the assumption of exogenous technological progress. Instead, the theory asserts that long-term growth is influenced by variables within the model itself, emphasizing factors such as investment, capital stock size, and human capital accumulation as drivers of technical progress and output growth. In contrast to the neo-classical model, the endogenous growth theory underscores the role of policy measures in shaping an economy's long-run growth trajectory. By integrating human capital as an independent factor of production, the theory recognizes its significance in determining output dynamics. The assumption of constant returns to human capital generation ensures a positive and increasing rate of output growth per worker in the steady state.

Adopting the endogenous growth theory proposed by Mankiwet al. (1992), this study integrates human capital into the Cobb-Douglas production function to examine the growth dynamics in Nigeria. By emphasizing the role of human capital development as a key driver of economic growth, this modified endogenous growth model offers insights into the impact of human capital accumulation on output growth and the overall economic prosperity of Nigeria.

2.2.2 Human Capital Theory

The theory of human capital, pioneered by Gary Becker and Theodore Schultz in the 1960s, posits that education and training are investments that enhance output. Schultz (1961) and Becker (1975) argued that as individuals acquire more education, the adaptation to new production processes and technologies becomes easier, resulting in strengthened returns on education and training. This theory suggests that higher education improves the thinking abilities of workers, leading to increased proficiency and productivity (Nelson and Phelps, 1966). Human capital theory supports the idea that investments in education, healthcare, skill acquisition, and nutrition contribute to the creation of a reservoir of human capabilities (Adelakun, 2011).

Theodore Schultz, Gary Becker, and Jacob Mincer contributed to the notion that people invest in education to increase their stock of human capabilities, formed by combining innate abilities with investments in human beings (Babalola, 2000). Human capital theorists argue that basic literacy enhances the productivity of workers in low-skill occupations, while education, especially for tasks demanding logical and analytical reasoning, increases the marginal productivity of workers in high-skilled professions. This theory contends that national productivity and economic growth depend on the availability of qualitative human capital, encompassing expenditures on education, on-the-job training, health, migration, and other factors that enhance individual productive capacities and earnings. Romer (1986) emphasized in the human capital theory how education enhances the productivity and efficiency of workers by elevating their cognitive skills. Hence, human capital theory underscores the significance of education and training as investments in human beings, positing that a well-educated and skilled workforce is crucial for economic development and growth.

2.2.3 The Modernization Theory

Modernization theory propounded by classicalist economists such as Lipset (1959) and Rostow (1960) in his book "The Stages of Economic Growth: A Non-Communist Manifesto" famous for Rostow's articulation of the five (5) stages of economic development, highlights the transformative role of education in shaping individual's values, beliefs and behaviors. This theory posits that exposure to modern institutions such as schools, factories, and mass media instills modern values and attitudes in individuals, fostering openness to new ideas, independence from traditional authorities, and willingness to plan and adapt to changing circumstances. Moreover, it cultivates a growing sense of personal and social efficacy. According to modernization theorists, these normative and attitudinal changes persist throughout an individual's life, leading to a permanent alteration of their relationship with the social structure.

The theory contends that the more individuals are exposed to modernization institutions, the higher the level of individual modernity achieved by society. Educational expansion is identified as a key driver in this process, as it sets in motion the essential building blocks for a more productive workforce and sustained economic growth. Hence, the modernization theory aligns with the understanding that economic growth is intricately linked to societal changes, and education serves as a catalyst for such changes.

The theories of Endogenous Growth, Human Capital, and Modernization offer a comprehensive framework for analyzing the impact of human capital on economic growth, particularly in the context of Nigeria. Endogenous Growth Theory, building on the Augmented Solow-Swan model, integrates human capital into the growth equation, illustrating how investments in education and skills directly contribute to productivity and long-term economic expansion. This approach emphasizes the dynamic role of human capital in driving technical progress and output growth, contrasting with traditional models that treat technological advancement as exogenous. Human Capital Theory, pioneered by Becker and Schultz, underscores the value of education and training as investments that enhance individual productivity and, by extension, national economic performance. This theory links the acquisition of knowledge and skills to improved job performance and higher economic returns. Lastly, Modernization Theory highlights the transformative power of education and modern institutions in fostering new values and behaviors, which in turn stimulate economic development. By integrating these theories, the empirical investigation into Nigeria's economic growth can more accurately assess how human capital accumulation and societal changes contribute to economic prosperity.

2.3 Empirical Review

Various studies have been conducted by different scholars on the impact of human capital on the economic growth of a country. Those studies span across different countries and continents and employ various econometric techniques. Though some of the studies are divergent in their conclusions, some of them however agree. A summary of the studies is provided with focus on their econometric models, findings and recommendations.

2.3.1 Studies on Nigeria

Oladeji (2015) investigated the relationship between human capital (through education and effective health care services) and economic growth in Nigeria, using annual time series data from 1980 to 2012. The

study employed OLS methodology and revealed that there is a significant functional and institutional relationship between the investments in human capital and economic growth in Nigeria. The study found that a long run relationship existed between education and economic growth in Nigeria.

Lawanson (2015) took the study conducted by Oluwatobi and Ogunrinola (2011) further by including both the health and education expenditures in her model, and examined the role of human capital investment (proxied by total government expenditure on education and health) on economic growth in Nigeria. The analysis found out that a clear relationship exists between human capital development and economic growth. The author recommended that government should increase her spending on education and health sectors in order to aid economic growth.

Fasoranti (2015) in his econometric analysis of the determinants of health expenditures in Nigeria between 1970 and 2012, using the OLS, Augmented Dick-Fuller unit root test and the Johansen cointegration test, established a long-run relationship between government health expenditure and all the variables such as literacy rate and consumer price index were significant factors in government expenditures.

Jaiyeoba (2015) carried out an empirical investigation on the relationship between investment in education, health and economic growth in Nigeria, using time series data from 1982 to 2011. He employed trend analysis, the Johansen cointegration and ordinary least square technique. Empirical findings however indicate that there is a long-run relationship between government expenditure on education, health and economic growth. The variables: health and education expenditure, secondary and tertiary enrolment rate and gross fixed capital formation appear with the expected positive signs and are statistically significant (except government expenditure on education and primary enrolment rate).

Anyanwu (2015) also examined the impact of human capital development on economic growth in Nigeria from 1981-2010. The study employed the autoregressive distributed lag (ARDL) model. The result of the study showed that human capital development indicators had a positive impact on economic growth in Nigeria. However, their impacts were found to be largely statistically insignificant.

Sulaimanet al. (2015) investigated the impact of human capital and technology on economic growth in Nigeria. They employed annual time series data for the period of 35 years (1975-2010) and applied autoregressive distributed lag approach to cointegration to examine the relationship between human capital, technology, and economic growth. Two proxies of human capital (secondary and tertiary school enrollments) were used in two separate models. Their result revealed that all the variables in the two separate models were cointegrated. Furthermore, the results of the two estimated models showed that human capital in form of secondary and tertiary school enrollments have had significant positive impact on economic growth. More so, technology also shows significant positive impact on economic growth.

Adeyemi and Ogunsola (2016) examined the relationship between human capital indices (education and health) and economic growth in Nigeria for the period of 1980 – 2013. Autoregressive Distributed Lag (ARDL) Cointegration approach was employed for the study. The findings of the study showed a positive long-run relationship among secondary school enrolment, public expenditure on education, life expectancy rate, gross capital formation and economic growth, although none of the variables were statistically significant. It also shows, a negative long-run relationship among primary, tertiary school enrolment, public expenditure on health and economic growth in Nigeria.

Odoset al. (2016) investigated the effect of human capital development on the economy of Nigeria. The study employed vector error correction model and Johansen co-integration technique on government expenditure on education and health and the GDP. The results revealed that the two independent variables have significant effect on economic growth in Nigeria.

Ogunleyeet al. (2017) examined the impact of human capital development on economic growth in Nigeria from 1981 – 2015. The study used the ordinary least square regression technique. The finding indicates that human capital development had a significant impact on economic growth. Osoba and Tella (2017) examined the interactive effects of human capital investment components and economic growth in Nigeria for the period of 1986 – 2014. The study employed secondary annual time series data on education expenditure, health expenditure, real gross domestic product and gross capital formation. The Fully Modified Ordinary Least Squares (FMOLS) technique was employed for the study. The results clearly show evidence of a positive and significant relationship between the interactive effects of human capital components and growth in Nigeria.

Another related study is Kairoet al. (2017) who empirically studied the relationship between human capital development and government expenditure (GOVEXP) in Nigeria. Data were collected over the period 1990-2014. ARDL and impulse response function were adopted for the estimation. The Bound Test was used to determine that a long run relationship exists between Human Development Index (HDI) and GOVEXP. The results demonstrate that both in the long and short run, government spending has remained positive but to a very large extent insignificant to human capital development in Nigeria. Their study explained that this is why Nigeria's per capita income has remained low for a long time in the world ranking. Their study therefore

strongly recommends that government spending should largely be focused on human development through specialized high technology-driven schools and efficient and effective health facilities.

Okumokoet al. (2018) studied the dynamics of human capital development and economic growth in Nigeria. The aim of the study was to examine the impact of human capital development on industrial growth in Nigeria. The study applied the ARDL techniques on the time series data spanning from 1976-2016. Their findings showed that recurrent expenditure on education and health has a negative impact on industrial growth.

Chijioke and Amadi (2019) conducted a study to examine Human Capital Investment as a Catalyst for Sustainable Economic Development in Nigeria. Specifically, this study aims to analyze the effect of education public expenditure on the Nigerian economy; identify the effect of health public expenditure on the Nigerian economy and verify the effect of capital formation on the Nigerian economy. The data used for the study were sourced from the central bank statistical bulletin and national bureau of Statistics over the period of 1986 to 2017. The method of data analysis was Ordinary Least Squares (OLS) techniques. The findings of the study revealed that there is a positive relationship between government expenditure on education and real gross domestic product. There is also a positive relationship between government expenditure on health and real gross domestic product while there is a positive relationship between gross capital formation and real gross domestic product.

Madakiet al. (2020) examined the disaggregated impact of government expenditure on human capital development in Nigeria from 1989-2018. Intuitively, the study adopted the ordinary least squares method, novel for its BLUE properties of its estimators. The result found that capital expenditure has significant impact on human capital development cum economic growth in Nigeria and they recommended that Government should make sure that fixed assets and recurrent expenditures are properly managed to accelerate economic growth through deliberate investment in educational sector.

Jacob et al. (2020) used secondary data to analyze the challenges of university education in Nigeria. Similarly, Ogunode and Musa conducted a study to analyze the challenges of university education in Nigeria. Both studies discovered that university education are multi-faceted and include; defective planning, inefficient management, poor funding by the authorities, insufficient teachers and lecturers, obsolete learning facilities, defective regulation and weak supervision, emigration of highly skilled professional abroad, industrial and labour disputes, corruption and substandard research output.

Keji (2021) conducted an empirically study to examine the nexus between human capital and economic growth in Nigeria between 1981 and 2017. Specifically, the study sought to analyse the impact of education and health (human capital) on economic growth from 1980-2013 in Nigeria. Human capital stock is proxied by primary, secondary and tertiary school enrolment. Human capital investment is proxied by expenditure on education and health. The data analytical techniques were histogram normality test, VEC residual serial correlation LM tests and VEC residual heteroskedasticity tests confirm the justification and validity of the estimated results obtained in this research. The findings of the study have shown public expenditure on health and education, primary and secondary school enrolment have positive statistically significant effect on economic growth both in long run and short run. In addition, physical capital has positive whilst inflation has negative effect on economic growth. However, tertiary school enrolment has insignificant effect on economic growth both in long run and short run.

Ojima and Anyanwu (2021) conducted a study to examine the human capital investment and economic growth in Nigeria from 1989-2019. Specifically, this study aims to examine impact of life expectancy, public expenditure on education, public expenditure on health, primary school enrolment, Human Development Index, used as proxy for Human Capital Development on economic growth with Nigeria in focus and between the periods 1989 – 2019. Data were obtained within the scope of the study and the variables were within the period of investigation. The study adopted the unit root, the dynamic ordinary least squares, as well as the Error Correction Model (ECM) to test the short and long run relationship of the variables selected for the study. The findings showed positive correlation except Human Development Index and Primary school enrolment that were found to have negative relationship with the Nigeria economic growth.

Euphemia (2022) examined human capital development and economic growth in Nigeria. The time series data was sourced from Central Bank of Nigeria Statistical Bulletin and World bank data base from 1981-2020. Using the Autoregressive Distributed Lag (ARDL) framework; the bounds testing analysis indicated the existence of co-integration between economic growth and human capital development indicators. The study found total government expenditure on education having positive and insignificant long-run relationship with GDP. Also, total government expenditure on health and gross capital formation was found having positive insignificant long-run relationship with GDP.

Eniekezimeneet al. (2023) examined the impact of human capital development on economic growth in Nigeria from 1981 to 2021 using the autoregressive distributed lag (ARDL) method. The analysis revealed that in the long run, government expenditure on education and tertiary school enrolment had insignificant negative impact on economic growth while government expenditure on health, gross fixed capital formation, primary and

secondary school enrolments had insignificant positive impacts on economic growth. On the other hand, in the short run, while government expenditure on education exhibited significant negative impact on economic growth, government expenditure on health had significant positive impact on economic growth. Gross fixed capital formation impacted positively on economic growth, primary school enrolment had negative impact while secondary and tertiary enrolments had positive impact on economic growth. Consequently, the study recommended among others that the government should set incremental annual targets expenditure on health aimed at achieving the Abuja agreement of 15% of total public expenditure in the health sector.

Eze (2023) examined the impact of human capital investment on the economic growth in Nigeria over a period of 1985 to 2021. The data analytical techniques used were descriptive Statistics, Augmented Dickey-Fuller Unit Root test and Autoregressive Distributed Lag Model. The following are the major findings of the study are; education expenditure (EGE) had 43% positive and insignificant impact on the economic growth in Nigeria, health expenditure (HGE) had 8% positive and insignificant impact on economic growth in Nigeria and tertiary school enrolment rate (TSER) had 48% positive and insignificant impact on the economic growth in Nigeria. The study concludes that the human capital investment has positive and insignificant impact on the economic growth in Nigeria.

2.3.2 Studies on Other Countries

Borojo and Yushi (2015) analyzed the impact of education and health (human capital) on economic growth from 1980 to 2013 in Ethiopia. Human capital stock is proxied by primary, secondary and tertiary school enrolment. Human capital investment is proxied by expenditure on education and health. The Augmented Dickey Fuller test and Johansen's Co-integration technique were used to test unit root and to validate co-integration among variables, respectively. Their study showed that public expenditure on health and education, primary and secondary school enrolment have positive statistically significant effect on economic growth both in long run and short run. In addition, physical capital has positive whilst inflation has negative effect on economic growth. However, tertiary school enrolment has insignificant effect on economic growth both in long run and short run.

Mat et al. (2015) examined the effects of human capital development on education, health and migration to economic development in Sabah (Malaysia) from 1980 to 2010. The Ordinary least square (OLS) technique was employed. It was found that higher gross domestic product (GDP) per capita was influenced by better literacy rate, the longevity of life expectancy at birth and required number of immigrants with sustainable gross domestic savings and improvement in the unemployment rate.

Hadir and Lahrech, (2015) examined the relationship between human capital development and economic growth in Morocco using annual data from 1973 to 2011. The ordinary least square regression method was adopted using total government expenditure on health and education, the enrolment data of tertiary, secondary and primary schools as proxy for human capital. The study revealed a positive relationship between total government expenditure on education, total government expenditure on health, primary school enrollment, secondary school enrollment and tertiary school enrolment.

Gebrehiwo (2016) analyzed the impact of human capital development on economic growth in Ethiopia over the period 1974/5 -2018/9. The econometric models of Johansen cointegration, VECM and causality tests were applied to analysis short-run and long-run impact of Human capital on Economic growth. The result of the error correction model shows that the model is adjusting at a relatively stable rate of 74.3% towards the long-run equilibrium. The result shows that human capital proxied of (primary and secondary school enrolments) and active labour force have a positive statistically significant long run and short-run effect on economic growth in Ethiopia. Results reveal that education expenditure and life expectancy at birth have a positive and statistically significant long-run effect on economic growth. However, the expenditure on health, secondary school enrolment and official development assistance are statically significant and has an unexpected negative impact on long-run economic growth.

Rehmanet al. (2018) conducted a study to test the between human capital and economic growth in selected nine Asian countries. Their study found that primary and secondary education are more prominent in explaining the fluctuations of economic growth in East Asia, whereas tertiary and vocational training showed positive effects on economic growth in South Asia. The study reveals that government expenditure on education was found to be positively affecting economic growth in both the regions.

Usman and Adeyinka (2019) examined the random effect of human capital development on economic growth of ECOWAS member States from 1980-2016. Four human capital variables were expenditures on education (EED), expenditures on health (EHE), gross domestic product (GDP) and school enrollment (SCE). The Pedroni residual co-integration approach was employed to test for the long-run relationship among the variables. The findings of the study showed evidence of a positive and significant relationship between GDP and government expenditure on education, expenditure on health and school enrollment in the ECOWAS counties. Matousek and Tzeremes (2019) re-examine the effects of human capital on countries economic growth using a

sample of 100 countries over the period from 1970t to 2014. The empirical findings suggest that the effects of human capital on countries economic growth levels ispositively and significant.

Parika and Singh (2020) conduct a study to examine the relationship between human capital and economic growth in India. The study utilizes annual time series data for the period 1980-2017. The major findings of the study suggest that human and physical capital is the major determinants of economic growth. Odonkoret al. (2021) conducted to investigate the impact of human capital on economic growth in West Africa, specifically Ghana over a period of 40 years. The researcher used secondary data on human capital development and economic growth that was extracted from the economic data of Ghana Statistical Service, the World Bank, journals of economic studies and the Bank of Ghana Research Unit. The researcher applied ordinary least squares regression to estimate the models and also perform data analysis. In the end, it was found out that human capital whether it is developed or under developed has a tremendous impact on the growth of an economy both in the short and long term. The finding of this study reveals that human capital development has significant impact on economic growth in West Africa, specifically Ghana.

Chaniet al. (2021) conducted a study to investigate impact of human capital investment on economic growth in Muslim and Non-Muslim Asian countries. Specifically, the sought to examine the long run influence human capital investment physical capital investment on economic growth. This study consists of 12 selected Muslims and Non-Muslims countries from SAARC and ASEAN region by taking annual data from 2001 to 2015. The methods of data analysis were IPS unit root test, Pedronicointegration test and Fully Modified Ordinary Least Square (FMOLS) econometrics methods have been applied to find the relationship between human capital investment, physical capital investment and economic growth. The results of panel FMOLS described that the education expenditure, health expenditure, gross fixed capital formation, labor force and inflation positively linked with economic growth.

Boadi (2019) conducted a study to examine impact of human capital, private physical capital, public infrastructure on economic growth in Ghana. Specifically, the sought to examines the effect of human capital, private physical capital and public infrastructure on economic growth and the causality between the variables in Ghana considering two alternative measures of human capital (health and education) and public infrastructure (electricity and telephone subscription). Autoregressive Distributive Lag (ARDL) and pairwise granger causality test was used on annual data for Ghana from 1975 to 2017. The empirical results show that, in the short run, the individual measures of human capital (education and health) and public infrastructure (electricity) have positive and significant effects on economic growth. The composite human capital has positive and significant effects on economic growth in the short run. However, in the long run, composite human capital, composite public infrastructure and physical capital do not have significant effect on economic growth.

Alam (2023) examined the relationship between human capital and economic growth in India over the period 1972-2019. The auto-regressive distributed lag (ARDL) model and the bound test of co-integration was employed. The long-run relationship revealed that both physical capital stock and the human capital index positively impact GDP growth in India. Growth in the human capital index is not found to be dependent on either GDP or physical capital stock. Since the human capital index is constructed based on years of schooling and returns to education, the study concluded that education stimulates economic growth in India.

2.4 Summary of Literature/Research Gap

From the literature reviewed, it can be seen that human capital in the form of increased government expenditures on education and health, respectively impacts positively on economic growth. However, there is a lack of consensus on the impact of government expenditure on education and health on economic growth. For instance, the study conducted by Olure and Usman (2018) showed a statistically significant and negative relationship between government expenditure on education and economic growth in Nigeria, while the study of Maku (2015) showed that human capital investment has positive but statistically insignificant effect on the growth rate of real GDP.

Meanwhile, the study conducted by Mamoloko and Collins, (2019) on relationship between human capital investment and economic growth in two sub-Saharan African countries had a very narrow scope by selecting two sub-Saharan African countries (Kenya and South Africa) and data of their studies were outdated therefore highlighting the need for further research on the topic with up-to-date data.

However, some of the literature reviewed proxied human capital development as total government expenditures on education and health without disaggregating total government expenditure into government's capital expenditure or government's recurrent expenditure. Some also proxied total government expenditures on education and health as government’s recurrent expenditures on education and health. The shortcoming of the other studies reviewed lies in the lumping together of government expenditures. This method would result in inefficient policy recommendations; hence the present study addressed these literature gaps by disaggregating government expenditure into recurrent and capital components.

More so, the study has introduced other variables like interest rate, inflation etc, and comparatively analyze Nigeria's HDI with some selected African countries in order to effectively capture the behaviour of human capital in relation to economic growth.

III. Methodology

3.1 Research Design

This study adopts a quasi-experimental design in which the model specification is drawn from a theoretical economic model framework, and thereafter uses empirical data for estimation of the relationship between human capital and economic growth for Nigeria. Formally, the research uses a linear multiple regression framework based on time series analysis. Specifically, the study utilizes the Autoregressive Distributed Lag (ARDL) and bounds testing approach for co-integration analysis and parameter estimation of both the short-run and long-run relationship. The usefulness of the ARDL framework is its simplicity and flexibility in a general-to-specific modeling approach for the estimation of both long- and short-run model parameters in a dynamic Error correction model (ECM) framework. Hence, the estimation technique is suitable for analyzing the long-run and short-run effect of human capital on economic growth in Nigeria. Moreover, the sample period for the analysis spans from 1985 to 2022 this is sufficient to evaluate the nexus.

3.2 Theoretical Framework

Following Barro and Lee (2013) and Irugheet al (2020), the study uses the endogenous growth theory framework in deriving the model specification for the analysis. As a starting point, assume a Cobb-Douglas production function of the form below:

$Y = AK^{\alpha}H^{1-\alpha}$ Equation 3.1

Where Y denotes output, K is the stock of physical capital, H is the human capital stock, and A is the total factor productivity.

Further, assuming that $H = hL$, where h represents the amount of human capital per worker and L is the number of workers, then the production function in Equation 3.1 can be rewritten as follows:

$Y = AK^{\alpha}(hL)^{1-\alpha}$ Equation 3.2

Furthermore, the variables in Equation 3.2 can be expressed in per worker terms and then naturallog transformed as presented in Equation 3.3.

$ln\left(\frac{Y}{L}\right) = lnA + \alpha\ ln\left(\frac{K}{L}\right) + (1-\alpha)\, ln\left(\frac{H}{L}\right)$ Equation 3.3

which corresponds to Equation 3.4

$ln\, y = lnA + \alpha\ ln\, k + (1-\alpha)\, ln\, h$ Equation 3.4

where$y$ is output per worker, k is capital stock per worker.

For h which is the human capital stock per worker, Barro and Lee (2013) assumed it to be directly proportional to education (schooling) as shown in Equation 3.5.

$h = e^{\phi(s)}$ Equation 3.5

with$\phi(s)$ denoting the efficiency of a unit of labour with five years of education.

Substituting into Equation 3.4 with the further assumption that $\phi(s)$ is linear results in the following specification is shown in Equation 3.6.

$ln\, y = lnA + \alpha\ ln\, k + (1-\alpha)\phi(s)$ Equation 3.6

On the basis of Equation 3.6, Barro and Lee (2013) estimated the relationship between output and human capital with the specification as shown in Equation 3.7.

$ln(Y_t) = \beta_0 + \beta_1\, ln(K_t) + \beta_2 S_t$ Equation 3.7

3.2 Model Specification

Following from the above theoretical framework and in accordance with the literature (Barro and Lee, 2013; Irughe and Edafe, 2020), Equation 3.7 is extended to account for different levels of education, from the primary to tertiary education system. In this context, human capital is proxied using school enrollment for the primary to secondary school and the tertiary (university) system. Most studies have measured human capital using school enrollment rates in Nigeria (Irughe and Edafe, 2020; Babangida, 2022). In a related analysis, and for more robust analysis, the school enrollment rates are subsequently replaced by government expenditures on education and health which are crucial components of human capital development. Thus, and in accordance with the research objective of this study, three models each with different proxies for human capital is estimated as already mentioned. To control other important variables in accordance with the endogenous growth model of Mankiwet al. (1992), both capital and labour force variables are included in the respective models.

Objective One

For Objective one, this study explores the effect of human capital proxy using the Human Development

Index (HDI) on economic growth. The model adopts the work of Balogunet al. (2023), who employed the VECM technique to evaluate the impact of human capital expenditure and economic growth in Nigeria. However, this work improved upon the model by incorporating other crucial variables such as human development index which is a critical factor in the context of human capital development. Consequently, the functional form of the model for examining Objectives one and two is as follows:

Model One:

$GDPGR = f(HDI, GCF, INF, INT, LBR)$ Equation 3.8

where GDPGR = GDP Growth Rate, HDI = Human Development Index, INF = Inflation Rate (%), INT = Lending Rate of Interest (%), GCF = Gross Fixed Capital Formation (% of GDP), LBR = Labour Force Participation Rate,

The model in its stochastic form is:

$GDPGR_t = \beta_0 + \beta_1 HDI_t + \beta_2 GCF_t + \beta_3 INT_t + \beta_4 INF_t + \beta_5 LBR_t + \mu_t$

(+) (+) (-) (+/-) (+)Equation 3.9

Where β_0 = Intercept, $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ = Coefficients of the exogenous variables, μ = Error term.

Model Two

$GDPGR = f(GEE, GEH, INT, LBR)$ Equation 3.10

Where GDPGR= GDP Growth Rate, GEE = Government Expenditure in Education, GEH = Government Expenditure in Health, INT = Lending Rate of Interest (%), LBR = Labour Force Participation Rate (%)

The model in its stochastic form is:

$GDPGR_t = \beta_0 + \beta_1 GEE_t + \beta_2 GEH_t + \beta_3 INT_t + \beta_4 LBR_t + \mu_t$ Equation 3.11

(+) (+) (+/-) (+)

Where β_0 = Intercept, $\beta_1, \beta_2, \beta_3, \beta_4$ = Coefficients of the exogenous variables, μ = Error term.

Model Three

For Objective three, the research re-evaluates the disaggregated effect of government expenditures (capital and recurrent) in health and education on human development index in Nigeria. Consequently, Equation (3.10) and Equation (3.11) isre-formulated by disaggregating government expenditures in education and health. The model is presented in Equation 3.12 and 3.13.

$HDI = f(ERE, ECE)$ Equation 3.12

$HDI = f(HRE, HCE)$ Equation 3.13

Where HDI = Human Development Index, ERE = Government Recurrent Expenditure in Education, ECE = Government Capital Expenditure in Education, HRE = Government Recurrent Expenditure in Health, HCE = Government Capital Expenditure in Health.

Rewriting Equation 3.12 and 3.13 in statistical form

$HDI_t = \beta_0 + \beta_1 ERE_t + \beta_2 ECE_t + \mu_t$ Equation 3.14

(+) (+)

and

$HDI_t = \beta_0 + \beta_1 HRE_t + \beta_2 HCE_t + \mu_t$ Equation 3.15

(+) (+)

Where β_0 = Intercept, β_1, β_2,= Coefficients of the exogenous variables, μ = Error term.

3.3 Data Collection Technique

The study made use of annual time series data collected from secondary sources spanning the periods 1985 to 2022. The data were collected primarily from annual reports of the Central Bank of Nigeria (CBN) statistical bulletin and World Development Indicators (WDI).

3.4 Method of Data Analysis

To empirically assess the effect of human capital economic growth in Nigeria, the Autoregressive Distributive Lag Model (ARDL) technique was used to establish the relationship between the variables for objectives one and two, while for objective three, Ordinary Least Square technique (OLS) was employed. The variables was subjected to a unit root test to make it stationary, also co-integration test will be carried out to check if the series are co-integrated in the long run. The error correction model was used to analyze the short-run dynamic relationship between the variables. Thus, the general form of ARDL is given below:

$Y_t = \propto_{0j} + \sum_{i=1}^{p} \partial Y_{t-1} + \sum_{j-1}^{q} \beta_j X_{t-1} + \varepsilon t$ Equation 3.16

Where Y_t is a vector and the variable in X_t are allowed to be purely I(0) or I(1) or co-integrated; β and δ are coefficients; α_0 is the constant; j =1,...,k; p,q are optimal lag order; is the vector of the error terms.

IV. Data Presentation, Analysis And Discussion Of Findings

4.1 Data Presentation and Analysis

4.1.1Analysis of Human Development Index on Gross Domestic Product in Nigeria

4.1.1.1Descriptive Analysis of the Data

Table 5.1 provides the outcome of the descriptive analysis conducted on the time series data employed for the study. The Table shows that the total number of observations for all variables is thirty-seven (37).In line with Table 4.1, the GDP growth rate has a mean of 0.2149% and a standard deviation of 0.147784%. The GDP growth rate, inflation rate and labour force participation rate were not normally distributed, this is because their probability values are less than 0.05% critical value.

Table 4.1: Descriptive Analysis of the Data

	GDPGR	HDI	INF	INT	LBR	GCF
Mean	0.214949	0.439538	19.11804	23.08646	59.45041	32.28833
Median	0.153228	0.429662	12.53783	22.50886	60.24800	29.38680
Maximum	0.752679	0.506308	72.83550	36.09000	60.71200	58.94738
Minimum	0.054808	0.392108	5.388008	11.75000	55.27000	14.90391
Std. Dev.	0.147784	0.041178	17.44103	5.381119	1.458556	13.39140
Skewness	1.608925	0.286908	1.775498	0.016480	-1.399650	0.277700
Kurtosis	6.095704	1.465926	4.846019	3.042501	3.927232	1.858134
Jarque-Bera	30.73766	4.135748	24.69343	0.004460	13.40609	2.485671
Probability	0.000000	0.126454	0.000004	0.997773	0.001227	0.288565
3 Sum	7.953117	16.26291	707.3676	854.1991	2199.665	1194.668
Sum Sq. Dev.	0.786239	0.061042	10950.82	1042.432	76.58590	6455.870
Observations	37	37	37	37	37	37

Source: Researcher's Computation Using Eviews 10

HDI has a mean value of 0.439538% and the deviation from the mean was 0.041178%. However, HDI was not normally distributed. This is because their probability values were less than the 0.05% critical value. The interest rate in the model was normally distributed and had a mean value of 23.08646% and a standard deviation of 5.31119%.

5.1.1.2 Unit Root Test of Stationarity

The Unit root test adopted for the study is the Augmented Dickey-Fuller test using the Akaike Info Criterion (AIC). The result is presented in Table 4.2

Table 4.2: Stationarity Test using ADF Statistics

	ADF t-statistic	Prob. Value	Integration Order
GDPGR	-3.5584	0.0117	I(0)
HDI	-4.3309	0.0092	I(0)
INT	-2.1358	0.0336	I(0)
INF	-4.3061	0.0017	I(1)
GCF	-7.3834	0.000	I(1)
LBR	-4.3061	0.0017	I(1)

Source: Researcher's Computation Using E-view 10.

The Unit root test ascertains at what level the variables adopted for the study become stationary and thus fit for the analysis, the Augmented Dickey-Fuller unit root test was conducted and the result is presented inTable 5.2.After computing the unit root test, most of the variables employed for the study were found to be stationary in mixed order that is at level I(0) and at first different I(1).

4.1.1.3 Lag Length Selection Criteria

Table 4.3 displays the outcome of the lag order selection criteria for the model because too many lags in the model will lead to a loss of degree of freedom, the coefficient may be statistically insignificant and multicollinearity can exist among the explanatory variables while too few lags can lead to specification error. To determine the optimum lag length to be employed in the study, the Akaike Information Criterion was chosen and the result is presented in Table 5.3 overleaf:

Table 4.3: Optimal Lag Length

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-310.6076	NA	2.899945	18.09186	18.35849	18.18390
1	-142.4698	269.0205	0.001575	10.54113	12.40755*	11.18542*
2	-97.48335	56.55436*	0.001141*	10.02762*	13.49382	11.22415

* indicates lag order selected by the criterion. LR: sequential modified LR test statistic (each test at 5% level) FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: HannanQuinn information criterion

Table 4.3 above uses the Akaike Information Criterion for the study, the Akaike Information Criterion indicates an optimum lag length of two (2). Thus, the optimum lag length to be employed in the autoregressive distributive lag is two.

4.1.1.4 Co-integration Test

This test is adopted to examine whether or not our variables have a long-run relationship, (i.e., whether they are co-integrated in the long run). The co-integration test was carried out using the autoregressive distributive lag bound test. Thus, the autoregressive distributive lag bound test is presented in the Table4.4 below

Table 4.4: ARDL Bound Test

F-Bounds Test		Null Hypothesis: No levels of relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
Asymptotic: n=1000				
F-statistic	8.804305	10%	2.08	3
K	5	5%	2.39	3.38
		2.5%	2.7	3.73
		1%	3.06	4.15

The co-integration test result presented in Table 4.4 shows that the variables used in this study have a long-run relationship. This is from the evidence that the F-statistic value of 8.8043 is greater than the upper bound value of 3.38 and lower bound value of 2.39 at 0.05% critical value. This implies that the dependent variable can be sufficiently predicted in the long run using the explanatory variables. Hence, the Error Correction Model (ECM) is estimated to determine the speed of adjustment from short-run disequilibrium to long-run equilibrium.

Table 4.5: Error Correction Model

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
GDPGR(-1)	-0.142835	0.160022	-0.892599	0.3803
HDI	-0.917627	0.916096	-1.001671	0.3257
GCF	-0.000377	0.002675	-0.141106	0.8889
INF	0.005265	0.001146	4.595256	0.0001
INT	-0.007750	0.003706	-2.090946	0.0465
INT(-1)	0.005206	0.004386	1.186952	0.2460
INT(-2)	0.007310	0.004146	1.763267	0.0896
LBR	0.022407	0.014041	1.595783	0.1226
C	-0.870575	1.017187	-0.855865	0.3999
CointEq(-1)	-1.142835	0.131220	-8.709333	0.0000
R-squared	0.763158	Mean dependent var		0.221879
Adjusted R-squared	0.690283	S.D. dependent var		0.148732
F-statistic	10.47222	Durbin-Watson stat		1.828036

Source: Computed by the Researcher using Eview 10

The regression short-run regression presented in Table 4.5 shows the results of the human development index and economic growth in Nigeria. From the result, the first-period lag of gross domestic growth rate GDPGR (-1) has a negative and statistically insignificant effect on its current value. Specifically, the one-period lag of the gross domestic product growth rate is negative and statistically insignificant at a 5% critical value. The negative coefficient of the one-period lag of GDP growth rate implies a decrease of 0.1428% in the current GDP growth rate. This result is contrary to theoretical expectations of Endogenous Growth which typically posit that past economic growth rates can have a positive influence on current growth. The insignificance of the

coefficient suggests that the lagged GDP growth rate does not have a substantial short-term impact, possibly due to structural issues or external shocks that overshadow historical growth patterns.

The short-run coefficient of the human development index is negative and statistically insignificant to the gross domestic product growth rate in Nigeria. This implies that a percentage increase in human development index will decrease gross domestic product growth rate by 0.9176%. This contradicts the a priori expectation of Human Capital Theory which posits that improvements in human development should enhance human capital which in turn impact economic growth. This unexpected result may be attributed to delayed effects of human development on economic growth or other intervening factors that dilute the immediate impact of HDI on GDP growth.

Also, the estimated value for gross fixed capital formation is negative and statistically insignificant to gross domestic product growth in Nigeria. This implies that holding other explanatory variables constant in the model, a percentage increase in gross fixed capital formation will decrease the gross domestic product growth rate by 0.0003% in the short run within the period under review. This is contrary to the theoretical expectations of Solow-Swan Growth and Endogenous Growth models that higher capital investment should drive economic growth. The insignificance of this coefficient might be due to inefficient capital utilization or a lag in the economic benefits of capital investments.

The coefficient of interest rate has a significant negative effect on gross domestic product in Nigeria. The negative coefficient indicates that a rise in interest rates reduces GDP growth by 0.0077%, agreeing with theoretical views of the Keynesians that higher interest rates can dampen economic activity by increasing borrowing costs. However, the positive but insignificant effects of the first and second-period lags of interest rates suggest that short-term fluctuations in interest rates may not immediately impact GDP growth, potentially due to monetary policy transmission lags or other compensatory economic adjustments.

However, the inflation rate estimated parameter indicates a positive and statistically significant effect on the gross domestic product growth rate in Nigeria within the study period. The positive effect of inflation on GDP growth (0.0052%) is unexpected, as economic theory based on the idea of A.W. Phillips that moderate inflation stimulates economic activity. The Phillips Curve typically associates high inflation with economic instability. This result could reflect a scenario where moderate inflation stimulates economic activity by enhancing nominal revenues or reducing real debt burdens, though it may also indicate a temporary anomaly rather than a robust long-term trend.

The labour force participation rate coefficient value is 0.0224% which implies that the labour force participation rate has a positive effect on the gross domestic product growth rate in Nigeria. Thus, a percent increase in the labour force will increase gross domestic product by 0.0224% in the short run within the period under review. The significant positive effect of LBR on GDP growth is consistent with expectations of Human Capital, the Solow-Swan Growth and Endogenous Growth Theories that a higher labor force participation rate boosts economic output. This result underscores the importance of labor market dynamics in driving economic growth. The coefficient of the error term measures the speed of adjustment to long-run equilibrium. For a stable system, the coefficient is expected to be negative and statistically significant. As presented in Table 5.5, the negative and significant error correction term indicates that the model is stable and adjusts to long-run equilibrium. The coefficient of -1.14283% suggests that the model corrects a significant portion of the disequilibrium within a year, reflecting the efficiency of the adjustment process. Meanwhile, the constant parameter indicates a negative sign and is also statistically insignificant, implying that if all the explanatory variables in the model are held constant, the gross domestic product will decrease by 0.8705% in the short run.

In summary, while some findings align with economic theories, others diverge, suggesting that additional factors may be influencing the relationships. These results highlight the need for further investigation into the dynamics of economic growth and the effectiveness of policy interventions in Nigeria. The R-squared (R^2) value measures the proportion of the variance in the dependent variable that is predictable from the independent variables in a regression model. The R^2 value is 0.7631, which implies that approximately 76.31% of the variance in the dependent variable is predictable from the independent variables. In comparison, the remaining 23.69% are due to stochastic terms not captured in the model. However, the adjusted R-squared value, which considers the number of independent variables in the model, provides a more accurate indication of the goodness of fit. From the short-run regression result, the adjusted R^2 value is 0.6902, this implies that about 69.02% of the variance in the dependent variable is explained by the independent variables, considering the number of predictors in the model. It shows that the independent variables in the regression model explain a significant portion of the variance in the dependent variable, with the adjusted R-squared value being a more conservative estimate due to the adjustment of the number of predictors in the model.

Table 4.6: Long Run ARDL Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
HDI	-0.802939	0.762093	-1.053597	0.3018
GCF	-0.000330	0.002325	-0.142056	0.8881
INF	0.004607	0.000908	5.073649	0.0000
INT	0.004171	0.003411	1.222598	0.2324
LBR	0.019607	0.011779	2.064592	0.0408
C	-0.761767	0.890868	-0.855085	0.4003

Source: Computed by the Researcher Using E-view 10

In the long run, the constant term in the regression model shown in Table 4.6exhibits a negative and statistically significant coefficient of -0.7617%. This result suggests that, holding all other variables constant, the gross domestic product (GDP) growth rate in Nigeria would decrease by 0.7617% over the long term. This finding aligns with economic intuition, potentially reflecting structural inefficiencies or persistent economic challenges that inhibit growth despite the presence of other influencing factors.

Conversely, the coefficient for the Human Development Index (HDI) is negative and statistically insignificant, indicating that HDI exerts a negative and insignificant effect on GDP growth in Nigeria. Specifically, an increase in HDI is associated with a 0.0829% decrease in GDP growth. This result diverges from the a priori expectation that improvements in human development should positively impact economic growth. The insignificant effect may be due to the time lag required for improvements in human development to translate into noticeable economic gains or potential measurement issues affecting the HDI's immediate impact.

The parameter for Gross Fixed Capital Formation (GCF) is positive but statistically insignificant, with a coefficient of 0.0003%. This result implies that while GCF has a marginal positive effect on GDP growth in the long run, the effect is not statistically significant. This findings is contrary to a priori expectations that higher capital formation should enhance economic growth. The insignificant impact might be attributed to inefficiencies in capital allocation or delayed productivity benefits from increased investment.

In contrast, the Labour Force Participation Rate (LBR) demonstrates a positive and statistically significant coefficient of 0.0196%. This result supports the economic theory that a higher labor force participation rate contributes positively to GDP growth, reflecting the productive contribution of an increased labor force to economic output. The Interest Rate (INT) coefficient is positive but statistically insignificant, with a value of 0.0041%. This suggests that changes in interest rates have a minimal and insignificant impact on GDP growth in the long run. This result diverges from the expected theoretical impact of interest rates on economic activity, possibly due to the limited range of interest rate changes within the study period or other compensatory economic adjustments.

Finally, the Inflation Rate (INF) has a positive and statistically significant coefficient of 0.0046%. This finding indicates that higher inflation rates are associated with increased GDP growth, which contradicts the conventional idea that high inflation undermines economic stability. This result could reflect a specific economic context where moderate inflation has a stimulating effect on economic activity, though it may warrant further investigation to understand its sustainability and underlying mechanisms. Overall, while some results align with economic theory, others suggest complex or context-specific dynamics at play, necessitating a deeper analysis of the factors influencing GDP growth in Nigeria.

4.1.2 Analysis of the Effect of Government Expenditure in Education and Health on Economic Growth in Nigeria

4.1.2.1 Unit Root Test of Stationarity

The Unit root test adopted for the study is the Augmented Dickey-Fuller test using the Akaike Info Criterion (AIC). The result is presented in Table 4.7

Table 4.7: Stationarity Test using ADF Statistics

	ADF t-statistic	Prob. Value	Integration Order
INGDP	-4.0737	0.0039	I(0)
INT	-3.2204	0.0267	I(0)
LBR	-4.3061	0.0017	I(1)
INGEE	-4.4572	0.0056	I(0)
INGEH	-3.1996	0.0293	I(0)
INHCE	-10.0571	0.0000	I(1)
INHRE	-2.9580	0.0490	I(0)
INECE	-7.0169	0.0000	I(1)

INERE	-5.6483	0.0000	I(1)
HDI	-5.7509	0.0000	I(0)

Source: Researcher's Computation Using E-view 10.

The Unit root test ascertains at what level the variables adopted for the study become stationary and thus fit for the analysis, the Augmented Dickey-Fuller unit root test wasconductedand the result is presented in Table 4.7 above.After computing the unit root test, most of the variables employed for the study were found to be stationary in mixed order. That is at level I(0), I(1). Thus, the ARDL bound test was estimated to know whether there is cointegration between the dependent and the independent variables.

Table 4.8: ARDL Bound Test Result

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Significance	I(0)	I(1)
F-statistic	50.42946	10%	2.2	3.09
K	4	5%	2.56	3.49
		1%	3.29	4.37

Source: Computed by the Researcher Using Eview 10.

The bound test co-integration indicate that the F-statistic value (50.4294) is greater than the upper bound value (3.49) and lower bound value (2.56) at 5% critical value. Theshows that the there is a co-integration between the dependent and the independent variables in the model. As the result, the error correction model was estimated to determine the speed of adjustment from shortrun disequilibrium to longrun equilibrium. Hence, the error correction model is presented in table 4.9 below

Table 4.9: Error Correction Model

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(INGEE)	-0.011287	0.015088	-0.748062	0.4607
D(INGEH)	0.057921	0.033929	1.707127	0.0989
D(LBR)	0.005674	0.011740	0.483331	0.6326
D(INT)	-0.006846	0.003254	-2.103871	0.0445
D(INT(-1))	-0.005776	0.003072	-1.880011	0.0705
CointEq(-1)	-0.091306	0.041043	-2.224635	0.0343
R-squared	0.663798	Adjusted R-squared		0.643422
Durbin-Watson stat	1.716877	S.E. of regression		0.066934

Source: Computed by the Researcher using EViews version 9 and 10

From the empirical result in Table 4.9 above, the short-run estimated parameter of government expenditure in education D(INGEE) has a negative and statistically insignificant effect on economic growth in Nigeria. This implies a percentage increase in the current value of government expenditure on education decreases economic growth by 0.0112% in Nigeria. In other words, it implies that short-term fluctuations in government expenditure on education do not significantly impact the dependent variable in the short run overtime.

Government expenditure in health D(INGEH) has a positive and statistically significant effect on economic growth in Nigeria. This indicate that holding the explanatory variables constant, a percent increase in government expenditure in health will increases economic growth in Nigeria by 0.0579% in the short run during the period under review. The coefficient of the interest rate D (INT) has a negative and significant effect on economic growth in Nigeria implying that an increase in interest rate will decrease economic growth in Nigeria by 0.0002% in the short run. The result conforms to the apriori expectation of this study. However, the labour force participation rate D(LBR) estimated parameter value is 0.0056% which implies that the labour force participation rate has a positive and insignificant effect on economic growth in Nigeria. Thus, a percent increase in the labour force will increase economic growth by 0.0056% in the short run within the period under review. This is also in accordance with the endogenous growth theory and also conform to a priori expectation of the study.

The error correction term, with a coefficient of -0.0913 and a t-statistic of -2.2246 (p-value: 0.0343), is statistically significant and negative. This indicates that approximately 0.0913% of the disequilibrium in the dependent variable is corrected within one period, highlighting the model's ability to revert to long-run equilibrium after short-term shocks. R-squared (0.6637) and Adjusted R-squared (0.6434): These values suggest

that approximately 66.37% of the variance in the dependent variable is explained by the independent variables in the model. The adjusted R-squared, which accounts for the number of predictors, indicates a slight reduction, but still shows a strong explanatory power of 64.34%.
Durbin-Watson statistic (1.7168): This value is close to 2, suggesting no significant autocorrelation in the residuals, which is a desirable property for the model.

Table 4.10: ARDL Long Run Estimated

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INGEE	-0.123618	0.188709	-0.655071	0.5178
INGEH	0.634359	0.159176	3.985272	0.0004
LBR	0.062148	0.145378	0.427492	0.6723
INT	0.094850	0.058360	1.625246	0.1153
C	4.483299	8.229966	0.544753	0.5902

Source: Computed by the Researcher using Eview 10

In the long run, the constant parameter indicates a positive and statistically insignificant coefficient. This implies that if all the independent variables in the model are held constant, the economic growth will increase by 4.4832% in the Nigerian economy in the long run. Moreover, in the long run, the government expenditure on education coefficient indicates a negative effect and is also statistically significant on economic growth in Nigeria. This means that an increase in government expenditure in education will contribute to a decrease economic growth in Nigeria by 0.0005%.

Also, government expenditure in health has a positive and significant effect on economic growth in Nigeria. Thus, an increase in government expenditure in health will increase economic growth in by 0.6343% in the longrun, holding all other explanatory variables constant.

However, the labour force participation rate estimated value is positive and statistically insignificant. This implies that, in the long run, a percent increase in labour force participation rate increases economic growth by 0.0621% in Nigeria within the period under study. This implies that an increase in the labour force contributed to an increase in economic growth by 0.0621% in Nigeria. Also, in the longrun, the estimated value for the interest rate is 0.0948%. This means that there is a positive and insignificant effect of interest rates on economic growth in Nigeria. Specifically, an increase in interest rate will increase economic growth by 0.0948% in the long run within the study period.

4.1.3 Analyzing the Disaggregation Effect of Government Expenditures in Education and Health on Human Development in Nigeria.

The short-run regression result was estimated to determine the disaggregated effect of government expenditure on education and health and its contribution to the human development in Nigeria. However, the result of the estimated parameter is presented in table 4.11 below

Table 4.11: Ordinary Least Square Result on the Effect of Government's Capital and Recurrent Expenditures in Education on Human Development Index in Nigeria Dependent Variables: HDI

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INECE	0.000908	0.008113	0.111912	0.9115
INERE	0.015548	0.007034	2.210494	0.0337
C	0.380918	0.051107	7.453302	0.0000
R-squared	0.458118	Mean dependent var		0.445608
Adjusted R-squared	0.427154	S.D. dependent var		0.059969
F-statistic	14.79488	Durbin-Watson stat		1.540924

Source: Computed by the Researcher using Eview 10.

From the empirical result in Table 4.11, government capital expenditure in education indicate a positive and insignificant effect on human development index in Nigeria within the period under review. The coefficient value of government's capital expenditure in education is 0.0009 and the probability value is 0.9115. This means that an increase in government capital expenditure in education will increase human development index in Nigeria by 0.0009%. However, government's recurrent expenditure in education has a positive and significant influence on human development index in Nigeria. Given that a percent increase in government's recurrent expenditure in education will increase human development index in Nigeria by 0.0155%. This as well is in accordance with the apriori expectation and economic theory employed in this study.

The R^2 value is 0.4581%, which implies that approximately 46% of the variance in the dependent variable is predictable from the independent variables. While the remaining 54% are due to stochastic terms not

captured in the model. Moreso, the adjusted R^2 value is 42.71% of the variance in the dependent variable is explained by the independent variables, considering the number of predictors in the model. The Durbin-Watson statistic value of 1.5409 close to 2, suggesting no significant autocorrelation in the residuals, which is a desirable property for the model.

Table 4.12: Ordinary Least Square Result on the Effect of Government's Capital and Recurrent Expenditures in Health on Human Development Index in Nigeria Dependent Variables: HDI

Variables	Coefficient	Std. Error	t-Statistic	Prob.
INHCE	-0.008017	0.013503	-0.593763	0.5565
INHRE	0.021262	0.010625	2.001079	0.0532
C	0.398715	0.012003	33.21721	0.0000
R-squared	0.488142	Mean dependent var		0.445608
Adjusted R-squared	0.458893	S.D. dependent var		0.059969
F-statistic	16.68918	Durbin-Watson stat		1.688477

Source: Eview version 10 Output

From the empirical result, government's capital expenditure in health indicate a negative and insignificant effect on human development index in Nigeria within the period under review. The coefficient value of government's capital expenditure in health is -0.0080 and the probability value is 0.5565. This means that an increase in government capital expenditure in health will decrease human development index in Nigeria by 0.0080%.

However, the coefficient estimate of government's recurrent expenditure in health has a positive and significant influence on human development index in Nigeria. Given that a percent increase in government's recurrent expenditure in health will increase human development index in Nigeria by 0.0212%. This is as well in accordance with the aproiri expectation and economic theory employed in this study.

The R^2 value is 0.4881%, which implies that approximately 49% of the variance in the dependent variable is predictable from the independent variables. While the remaining 51% are due to stochastic terms not captured in the model. However, the adjusted R^2 value is 45.88% of the variance in the dependent variable is explained by the independent variables, considering the number of predictors in the model. The Durbin-Watson statistic value of 1.6884 is close to 2, suggesting no significant autocorrelation in the residuals, which is a desirable property for the model.

4.2.2 Diagnostics Test

These tests are based on econometric theory and are aimed at finding out whether the ordinary least square assumptions are satisfied. The analysis that will be carried out includes the heteroscedasticity test, multicollinearity test and autocorrelation test which are the major problems of econometrics.

Table 4.16: Diagnostic Test Result

	F-statistics	Prob.(F-statistics)	Decision
Heteroskedastic Test	1.2118	0.3290	Homoscedastic
Serial Correlation	0.3536	0.7054	No autocorrelation
Normality Test	0.0037	0.9981	Normally Distributed

Source: Computed by the Researcher using Eview 10

From Table 4.16, the probability value of the F-statistic of 0.3290 is greater than 0.05% given the significance evel, which implies that the residual was distributed with equal variance. Thus, the variance of the standard error is equal to zero implying the homoscedasticity of the model. Also, the serial correlation test was carried out to determine if the error terms in the model are correlated. From the result in table 5.2b, the probability value associated with the F-statistic value of 0.7054 is greater than the 0.05% critical value which signifies no autocorrelation. Lastly, the variables used for the study were normally distributed because the probability value of the jarque-berra statistics (0.9981) is greater than the 0.05% critical value.

4.1.2.5 Stability Test

The cumulative sum (CUSUM) of recursive residuals was applied to assess the model stability. If the plot of the CUSUM of recursive residuals stays within the 0.05% critical bounds, the null hypothesis that all the parameters are stable cannot be rejected.

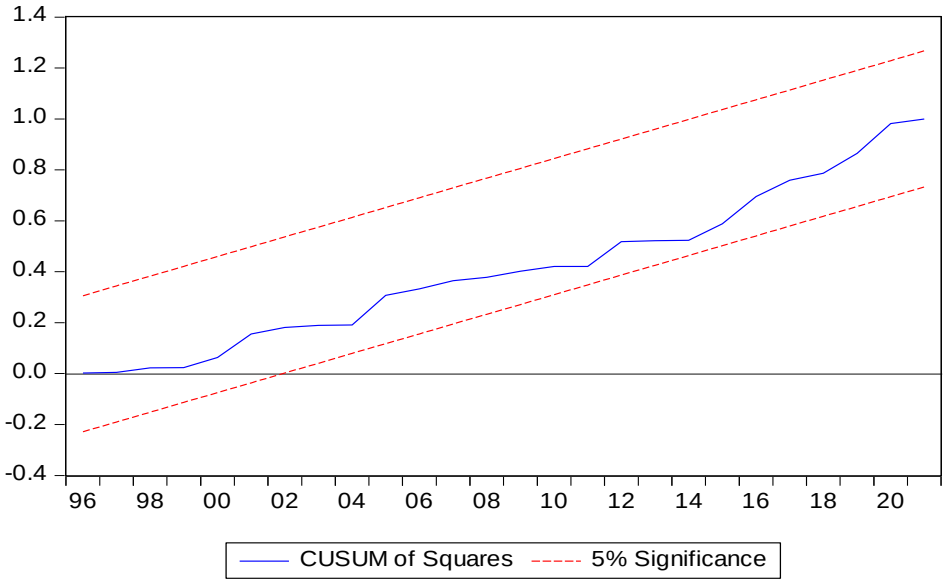

Figure 4.2: Cumulative Sum of Recursive Residuals

Source: Researcher's Computation from Eview's 10 Output

Figure 4.2 represents the CUSUM recursive residuals. The CUSUM recursive residuals and CUSUM of squares were in between the 5% critical bound. Thus, the null hypothesis is rejected and concludes that the model was stable.

4.3 Discussion of Findings

4.3.1 Analysis of Human Development Index on Gross Domestic Product in Nigeria

From the empirical findings, the human development index has a negative and insignificant impact on gross domestic product in Nigeria both in the short run and the long run in Nigeria. This inverse relationship between Human Development Index (HDI) and gross domestic product in Nigeria could be due to various reasons including non-provision or lack of access to quality education and healthcare, institutional challenges, incompetent leadership style, mismanagement of resources, political instability and income disparity among the people in which the income generated seems not to be evenly distributed across the population, leading to disparities in living standards and overall human development. These adversely affect human capacity and impact gross domestic product in Nigeria negatively.

However, Nigeria faces infrastructural deficiencies such as transportation networks and power supply, which can hinder productivity and competitiveness. Again, institutional weaknesses, such as corruption and public sector inefficiencies, can deter investment and economic development.

4.3.2 Analysis of the Effect of Government Expenditure in Education and Health on Economic Growth in Nigeria

Based on the research findings, spending by the government in education has a negative and insignificant impact on economic growth in Nigeria in the short run and long-run within the period examined. Spending in education is a key prerequisite for building human resources, boosting efficiency, and promoting a sustainable economic growth. Nonetheless, inefficient resource management, opacity, and inefficiencies in distributing resources in Nigeria diminish the effect of spending in education. Additionally, factors like mismatch between the skills developed through the education system and the demands of the labour market that can limit the effect of government spending in education.

Consequently, this can hinder the economy's productivity and growth. Furthermore, insufficient investment in educational facilities, such as schools, equipment, and technology, can limit the level of education provided. Inadequate facilities, outdated curricula, and a shortage of skilled educators can lessen the effectiveness of education spending. Quality and effective education is a necessary tool for economic growth. If people don't have the right skills, they may not get the full benefits of education. On health, government spending in health has a positive and significant effect on economic growth in Nigeria in the short run and long-run within the period examined.

This imply that Increased government spending in the health sector typically leads to a reduction in long-term healthcare costs by emphasizing preventive care and early intervention, enhanced the quality of human capital by reducing mortality and morbidity rates and better healthcare services, which improve the

overall health of the population. A healthier workforce is more productive, as individuals are likely to take fewer sick days, work more efficiently, and have a longer working lifespan and, consequently, an increase in GDP.

4.3.3 Analysis of the Disaggregated Effect of Government Expenditure in Education and Health on Human Development Index in Nigeria.

From the findings, government's recurrent expenditure in health has a positive and significant influence on human development index in Nigeria. This implies that government's recurrent expenditure in term of wages and salaries, training, research and development, seminar, maintenance of equipment, etc., will boost the human capacity working in the sector and as such it will have the capacity to influence human development in Nigeria.

Conversely, government's capital expenditure in health portrayed a negative relationship with human development. When government's capital expenditure on health have a negative relationship with HDI in Nigeria, it implies that funds allocated to the health sector is not effectively contributing to the overall improvement of the citizens. This negative relationship may be due to various reasons including;

i. Insufficient government investment in the provision of healthcare services to the people.
ii. Inefficientutilization of funds and resources which in turn,impact the overall human development negatively.
iii. Structural issues within the health sector such as disparities in access to quality healthcare services. These issues can impede the effectiveness of government expenditures in health and ultimately affect the human development outcomes.

However, government's recurrent expenditure in education has a positive and significant effect on human development in Nigeria. It indicates that investing in recurrent expenditure on education can lead to improvements in human development outcomes in the country. The positive relationship between government's recurrent expenditures in education and human development in Nigeria signifies the importance of investing in education through training, seminar, research and development and the like to improve living standards, enhanced human development, and foster sustainable growth in the country. On the contrary, government's capital expenditure in education has a negative and insignificant impact on human development index in Nigeria. This means that increased spending in educational infrastructure does not necessarily translate into better HDI outcomes. Factors such as mismanagement of funds, lack of effective implementation, Political instability and insecurity in various parts of Nigeria can disrupt the implementation of educational projects, thus, reducing their effectiveness. Regions affected by conflict or unrest may not benefit from capital expenditure, which could negate positive impacts on HDI.

Moreso, underinvestment in human resources, long-term nature or delayed effect of educational investments, particularly capital expenditures, tend to have long-term effects that may not be immediately reflected in short-term measures of human development like HDI. Improvements in educational outcomes often take years or even decades to manifest in the form of higher literacy rates, better health outcomes, and increased economic productivity, all of which contribute to HDI (Barro and Lee, 2013). Nigeria has significant regional disparities in educational access and quality. Capital expenditure may be concentrated in certain regions, leaving others underserved. This uneven distribution can lead to insignificant overall impacts on national HDI if large portions of the population remain unaffected. These can undermine the positive effect of capital expenditure on educational quality and, subsequently, on overall human development indicators.

V. Summary, Conclusion And Recommendations

The research work examined human capital development on economic growth in Nigeria from 1985 to 2022. The specific objective was to determine the effect of the human development index on economic growth, determine the influence of government expenditure in education and health on human development index and also assess the influences of a disaggregated government expenditures in education and health on human development in Nigeria. To achieve these objectives, several theories such as the human capital theory and growth theory serve as a guide for the study.

However, the research design used for the study was retrospective which employed an autoregressive distributive lag technique to examine the effect of human capital development on economic growth in Nigeria. At first, the study tested for stationarity of the series, and co-integration in all the models after selecting optimum lags and found that all the variables in the respective models were co-integrated. Diagnostic tests were conducted for all the models, and the results revealed that they were well-fitted and satisfied nearly all major classical linear regression requirements. From the empirical results, the major findings of the study were:

i. Human development has a negative and insignificant influence on economic growth in Nigeria in both short run and long run within the periods of study.

ii. Government expenditure in education indicated a negative effect on economic growth in Nigeria in both short run and long run within the period of study, whereas, government expenditure in health has a positive effect on economic growth in both short run and long run within the study period.
iii. In examining the influence of disaggregated government expenditures on human development index in Nigeria, government's capital expenditure in education has a negative and insignificant influence on human development index, whereas, government's recurrent expenditure in education has a positive and significant influence on human development index in Nigeria.

Conversely, government's capital expenditure in health depicted a negative influence on human development index in Nigeria, while government's recurrent expenditure in health has a positive and significant influence on human development in Nigeria.

Conclusion

The research study reveals that the relationship between human development and economic growth in Nigeria is unfavourable. Moreso, the research shows that spending by the government in education negatively affects the country's economic growth. The results also indicate that Nigeria's government and stakeholders should reevaluate their approach to investing in education to enhance human development in Nigeria. They might have to adjust how the distribution of resources to these sectors to guarantee a more beneficial effect on economic growth.

Moreover, the study points out that spending by the government on health has a positive effect on economic growth in both short run and long run. This emphasizes the importance of a concerted efforts and strategic planning by the government to ensure that spending in education and health yields sustainable and positive influence on human development and economic growth in Nigeria.

Policy Recommendations

Human Capital as captured by HDI did not have a significant effect on economic growth in Nigeria during the study period. Also, government expenditures on education and health equally had an insignificant effect on HDI, which could have led to growth. In addition, all-of-government expenditures in terms of capital and recurrent impacted insignificantly on HDI. This could be attributed to various reasons such as under funding of education and health sectors, benefit capture syndrome in the sectors, underemployment, and brain drain, among others. This means all government expenditures in education and health during the study period was inadequate and insufficient to drive growth. Therefore, the study recommends based on the findings of this research study, the following recommendation was made:

1. To address the insignificant effect of HDI on economic growth, the government should invest in skills development. Investments in skills development programs that are aligned with the needs of the labour market can help improve the quality of human capital in Nigeria and enhance the country's competitiveness and economic growth in the long term.
2. To address the negative influence of government expenditures in education on economic growth in Nigeria, policymakers should review the current allocation of resources in education to ensure that funding is directed towards initiatives that have a positive impact on economic growth. This can involve prioritizing spending on programs that enhance human capital and productivity. More so, government should focus on enhancing the standard of education by investing in educators training, curriculum development and the improvement of school facilities.
3. To boost the positive effects of government expenditure in health on economic growth in Nigeria, it is recommended that government should prioritize investments in primary healthcare infrastructure and preventive care. By expanding access to quality healthcare services, particularly in rural and underserved areas, and focusing on disease prevention, the government can improve overall public health, reduce the economic burden of illness, and enhance workforce productivity. This approach will contribute to a sustained economic growth by fostering a healthier, more capable population.
4. There should be a major shift towards a more coordinated and efficient healthcare system in Nigeria via Sector Wide Approach in Health (SWAP). This will enhance transparency and efficiency in the allocation and utilization of resources, ensuring that resources are directed toward priority areas and used to achieve measurable outcomes.
5. To address the negative and insignificant effects of government capital expenditure in education on Human Development Index (HDI), it is recommended that the government should reallocate spending towards improving the quality and accessibility of education rather than just expanding infrastructure. This includes investing in teacher training, curriculum improvements, and student support to enhance educational outcomes. By focusing on the effectiveness of educational resources, rather than just physical infrastructure, the government can better contribute to raising HDI through meaningful improvements in education quality

and accessibility.

6. In addition, to address the negative influence of government capital expenditure in health on HDI, it is advised that the government should shift focus from merely expanding healthcare infrastructure to improving the quality and accessibility of healthcare services. This includes investing in healthcare personnel, essential medical supplies, and preventive care programs. By ensuring that capital investments directly enhance the effectiveness and reach of healthcare services, the government can better support improvements in health outcomes, thereby positively influencing HDI.
7. The government should ensure that its expenditure, whether capital or recurrent, should be managed and monitored at the implementation phase to improve comparable accomplishment viz-a-viz on economic growth.
8. Furthermore, the study recommends collaboration and encourages partnerships between the educational and healthcare sectors to capitalize on mutual benefits and improve the overall outcomes of human development.

References

[1]. Adebiyi, A. M. (2006). Education-economic growth paradox in Nigeria: An autoregressive model. Available at SSRN: https://ssrn.com/abstract=876244 (Retrieved on 7th August 2024).

[2]. Adelakun, O. J. (2011). Human capital development and economic growth in Nigeria. European Journal of business and management, 3(9): 29-38.

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

[4]. Alam, F. (2023). Human Capital and Economic Growth in India: The ARDL Approach. Revista Amazonia Investiga, 12(68), 9-20.

[5]. Aluko, Y. A., and Aluko, O. (2012). Human capital development: Nigeria's greatest challenge. Journal of Management, 13(1):163.

[6]. Anyanwu, S. O., Adam, J. A., Obi, B., and Yelwa, M. (2015). Human capital development and economic growth in Nigeria. Journal of Economics and Sustainable Development, 6(14): 16-26.

[7]. Asaju, K. (2012). Human Capital Development and Poverty Alleviation in Nigeria: A Symbiotic Overview. Journal of Public Administration and Governance, 2(4):110-118

[8]. Ayertey-Odonkor, A., Asiedu-Nketiah, K., Brown, E. O. A., and Mamun Miah, M. (2018). Human Capital Development and Economic Growth in Developing Economies. Available at SSRN:http://dx.doi.org/10.2139/ssrn.3305421. (Retrieved on 7th August 2024).

[9]. Babalola, V. K. (2000). Public investment in basic education and economic growth. Journal of Economic Studies, 35(4): 352-364.

[10]. Babangida, B. U. (2022). Does government expenditure affects economic growth? An empirical evidence from Nigeria. Polac International Journal of Economic and Management Science (PIJEMS), 9(2): 108-116.

[11]. Balogun, A. A., Ajiboye, I. E., and Olorunmade, G. (2023). The impact of human capital expenditure on economic growth in Nigeria. Fuoye Journal of Finance and Contemporary Issues, 4(2): 27-29.

[12]. Barney, J. B. (1995). Looking inside for Competitive Acknowledge. Academy of Management Executive, 9(4): 1-5.

[13]. Barro, R. J., and Lee, J. W. (1996). International measures of schooling years and schooling quality. The American Economic Review, 86(2), 218-223.

[14]. Barro, R. J., and Lee, J. W. (2013). A new data set of educational attainment in the world, 1950–2010. Journal of Development Economics, 104: 184-198.

[15]. Becker, G. S. (1964). Human capital: A theoretical and empirical analysis with special reference to education. NBER publishers, New York, 49p.

[16]. Becker, G. S. (1975). Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education. 2nd edition. Columbia University Press, New York, 147p.

[17]. Biswas, B., and Caliendo, F. (2002). A multivariate analysis of the human development index. Economics Research Institute Study Paper, 11: 1-4.

[18]. Boadi, J. O. (2019). Human Capital, Private Physical Capital, Public Infrastructure and Economic Growth in Ghana. PhD Thesis. University of Ghana, Ghana, 74p.

[19]. Borojo, D. G., and Yushi, J. (2015). The impact of human capital on economic growth in Ethiopia. Journal of Economics and Sustainable Development, 6(16): 109-118.

[20]. Chani, M. I., Sheikh, M. R., Mansha, M., Abbas, A., and Iqbal, J. (2021). Impact of human capital investment on economic growth in Muslim and non-Muslim Asian countries. PalArch'sJournal of Archaeology of Egypt/Egyptology, 18(4): 5227-5247.

[21]. Chijioke, A. K., andAmadi, A. I. (2019). Human capital investment as a catalyst for sustainable economic development in Nigeria. International Journal of Management Science and Business Administration, 5(5): 13-22.

[22]. Eniekezimene, F. A., Ebimowei, W., and Joseph, A. (2023). "Human Capital Development and Economic Growth: Evidence from Nigeria". Asian Journal of Economics, Business and Accounting 23 (21): 96-110.

[23]. Euphemia, L.-B. I. (2022). Human Capital Development and Economic Growth in Nigeria (1981-2020). Asian Journal of Economics, Finance and Management, 4(1): 393–403.

[24]. Eze, C. G. (2023). Impact of human capital investment on economic growth in Nigeria: Econometric approach of Autoregressive Distributive Lag Model (ARDL). World Journal of Advanced Research and Reviews, 18(2): 1096-1110.

[25]. Fasoranti, M. M. (2015). An econometric analysis of the determinants of government health expenditures in Nigeria. Journal of Empirical Economics, 4(4): 193-206.

[26]. Folloni, G., and Vittadini, G. (2010). Human capital measurement: A survey. Journal of Economic Surveys, 24(2): 248-279.

[27]. Frank, R. H., and Bernanke, B. S. (2007). Principles of Microeconomics. 3rd edition. McGraw Hill/Irwin, New York, 437p.

[28]. Gebrehiwo, K. G. (2016). The impact of human capital development on economic growth in Ethiopia: Evidence from ARDL approach to co-integration. Bahir Dar journal of education, 16(1): 24-32.

[29]. Graham, C. (2010). The challenges of incorporating empowerment into the HDI: Some lessons from happiness economics and quality of life research. United Nations Development Programme Human Development Reports Research Paper, 2010/13: 1-56.

[30]. Hadir, M. A., andLahrech, A. (2015). Human capital development and economic growth in Morocco. International Journal of Education and Human Developments, 1(1): 49-73.

[31]. Ibok, E. E., andIbanga, S. E. (2014). The impact of human capital development and economic empowerment on the socioeconomic development of AkwaIbom State, Nigeria. Global Journal of Human Resource Management, 2(3): 37-44.

[32]. Ifejika, S. I. (2017). The challenges of human capital development in Nigeria: a theoretical insight. Silpakorn University Journal of Social Sciences, Humanities, and Arts, 17(2): 41-74.

[33]. Ijaiya, G. T., and Ijaiya, M. A. (2004). Foreign aid and poverty reduction in sub-Saharan Africa: A cross-country investigation. South African Journal of Economic and Management Sciences, 7(3): 542-552.

[34]. Ilegbinosa, I. A. (2013) Human Capital Investment as an Effective Tool for Economic Development in Nigeria. International Journal of Management and Business Studies, 3(1): 7-13.

[35]. Irughe, R., Edafe, J., and Eregha, P. (2020). Education and economic growth: Empirical evidence from Nigeria.African Economic Research Consortium, 407: 1-47.

[36]. Isola W. A., and Alani, R. A. (2012). Human capital development and economic growth: Empirical evidence from Nigeria. Asian Economic and Financial Review, 2(7): 813-827.

[37]. Jacob, O. N., Deborah, J., Samuel, A., Elizabeth, A., and Solomon, A. T. (2020). Administration of research programme in Nigerian public universities: Problems and way forward. Riwayat: Educational Journal of History and Humanities, 3(2): 1-4.

[38]. Jhingan, M. L. (2007). The economics of development and planning. 2nd Edition. Vrinda publishers, Delhi, 549p.

[39]. Kairo, C. I., Mang, N. J., Okeke, A. and Aondo, D. C. (2017). Government expenditure and human Capital development in Nigeria: an Auto-Regressive Distributed Lagged Model Approach (ARDL). International Journal of Advanced Studies in Economics and Public Sector Management, 5(1): 143-158.

[40]. Keji, S. A. (2021). Human capital and economic growth in Nigeria. Future Business Journal, 7(1): 49-57.

[41]. Kenton, W. (2023). Human Capital Definition: Types. Examples and Relationship to the Economy. https://www.investopedia.com/terms/h/humancapital.asp(Retrieved on 7th August 2024).

[42]. Klees, S. J., Stromquist, N. P., Samoff, J., and Vally, S. (2019). The 2018 world development report on education: A critical analysis. Development and Change, 50(2): 603-620.

[43]. Kovacevic, M (2011). Review of HDI critiques and potential improvements. United Nations Development Programme Human Development Reports Research Paper, 2010/33: 1-48.

[44]. Lawanson, A. O. (2015). Economic growth experience of West African region: does human capital matter?International Journal of Business and Social Science, 6(12): 1-11.

[45]. Lawanson, O. I. (2009) Human Capital Investment and Economic Development in Nigeria: The Role of Education and Health. Oxford University Press, Oxfford, 407p

[46]. Lipset, S. M. (1959). Some Social Requisites of Democracy: Economic Development and Political Legitimacy. American Political Science Review, 53(1): 69–105.

[47]. Lucas Jr, R. E. (1988). On the mechanics of economic development. Journal of Monetary Economics, 22(1): 3-42.

[48]. Madaki, G. T., Jelilov, G. andAkyuz, M. (2020). Disaggregated Impact of Government Expenditure on Human Capital Development in Nigeria. The Journal of Middle East and North Africa Sciences, 6(12): 10-19.

[49]. Maku, O. E., and Ajike, E. O. (2015). The impact of capital and financial flows on human welfare in Sub-Saharan Africa. Global Journal of Management and Business Research, 15(9): 1-14

[50]. Maku, Olukayode E. (2009). Does Government Expenditure spur Economic Growth in Nigeria? Munich Personal RePEc Archive. https://mpra.ub.uni-muenchen.de/id/eprint/17941. (Retrieved on 7th August 2024).

[51]. Mamoloko, F. R. and Collins C. N. (2019) Human Capital Investment and Economic Growth: A Test of Endogenous Growth Theory in Two Developing Countries. ActaUniversitatisDanubius, 15 (1): 92-102.

[52]. Mankiw, N. G., Romer, D., and Weil, D. N. (1992). A contribution to the empirics of economic growth. The Quarterly Journal of Economics, 107(2): 407–437.

[53]. Mat, N. A., Mansur, K., and Mahmud, R. (2015). The relationship between human capital investment and economic development in Sabah. Malaysian Journal of Business and Economics (MJBE), 2(1): 21-27.

[54]. Matousek, R., and Tzeremes, N. G. (2019). The asymmetric impact of human capital on economic growth. Empirical Economics, 1: 1-26.

[55]. Mba, I. C., Mba, E. I., Ogbuabor, J. E. and Ikpegbu, C. H., (2013). Human capital development and economic growth in Nigeria. Journal of Economics and Sustainable Development 4(18): 1-7.

[56]. Meyer, D. F., and Sanusi, K. A. (2019). A causality analysis of the relationships between gross fixed capital formation, economic growth and employment in South Africa. StudiaUniversitatis Babes-BolyaiOeconomica, 64(1): 33-44.

[57]. Ndiyo, N. A. (2007). "A dynamic analysis of education and economic growth in Nigeria," Journal of Developing Areas, 41(1): 1-16.

[58]. Nelson, R. and Phelps, E. (1966). Investment in humans, technology diffusion, and economic growth. American Economic Review, 56(2): 69-75.

[59]. Obeidat, Z. M. (2016). Human capital investment and training in Islamic banking industry in Jordan. Jordan Islamic Bank for Finance and Investment. European Scientific Journal, 12(10): 1-8.

[60]. Odo, S. I., Eze, O. R., and Onyeisi, O. S. (2016). Analysis of the relationship between human capital development and economic growth in Nigeria. European Journal of Accounting, Auditing and Finance Research, 4(3): 56-71.

[61]. Odonkor, A. A., Asiedu-Nketiah, K., Oyemam, E. A. B. and Mohammad, M. M. (2021) Human Capital Development and Economic Growth in Developing Economies; International Journal of Humanities and Social Science, 2 (15): 45-56.

[62]. OECD (2016), OECD Science, Technology and Innovation Outlook 2016, OECD Publishing, Paris, https://doi.org/10.1787/sti_in_outlook-2016-en. (Retrieved on 7th August 2024).

[63]. Ogbeifum, S. and Olisa, E. (2001). Half-baked teacher's bane of education woes. The Vanguard 25(3): 7-18.

[64]. Ogunleye, O. O., Owolabi, O. A., Sanyaolu O. A., and Lawal, O. O. (2017). Human capital development and economic growth in Nigeria. IJRDO-Journal of Business Management. 3(8): 17-37.

[65]. Ogunniyi, A., Oluseyi, O. K., Adeyemi, O., Kabir, S. K., and Philips, F. (2017). Scaling up agricultural innovation for inclusive livelihood and productivity outcomes in sub-Saharan Africa: The case of Nigeria. African Development Review, 29(S2): 121-134.

[66]. Ogunode, N. J. and Musa, A. (2020). Higher education in Nigeria: Challenges and the ways forward. Electronic Research Journal of Behavioural Sciences, 3: 43-47.

[67]. Ojima, D. and Anyanwu, U. N (2021) Human capital investment and economic growth in Nigeria; 1989-2019. International Journal of Social Science and Human Research; 4(8): 2016-2022.

[68]. Okojie, C. E. E. (1995). Human capital formation for productivity growth in Nigeria. Nigerian Economic and Financial Review, 3(1), 44-45.

[69]. Okoroma, N. S. (2006). Educational policies and problems of implementation in Nigeria: [National Policy on Education in Nigeria.]. Australian journal of Adult learning, 46(2), 243-263.

[70]. Okumoko, T. P., Omeje, D., and Udoh, F. M. (2018). The dynamics of human capital development and industrial growth in Nigeria. International Journal of Developing and Economic Sustainability, 6(2), 41-51.

[71]. Oladeji, A. O. (2015). Impact of human capital development on economic growth in Nigeria. International Journal of Recent Research in Commerce Economics and Management. 2(2): 151- 164.

[72]. Olure-Bank, A. M., and Usman, F. K. (2018). Nexus of Human Capital Development and Economic Development in Nigeria. Research Gate, 1: 1-22.

[73]. Oluwatobi, S. O., and Ogunrinola, I. O. (2011). Government expenditure on human capital development: Implications for economic growth in Nigeria. Journal of sustainable development, 4(3): 72-86.

[74]. Omodero, C. O. (2019). Government general spending and human development: A case study of Nigeria. Academic Journal of Interdisciplinary Studies, 8(1), 51-59.

[75]. Omolara, C. (2017). Inclusive growth and sustainable human development in Nigeria. Advances in Social Sciences Research Journal, 4(7), 345-353.

[76]. Onabote, A. A., Owoeye, T., Obasaju, B. O., Ogunjobi, J., Ahmed, V., Oladipo, O.R., Aregbesola, A., Ogunjumo, R. A., Ibitowa, S. A., Adeyemi, P., Onabote, E. J., and Ashaolu, A. (2024). ICT, Human Capital and Sustainable Development in Sub-Saharan Africa. 2024 International Conference on Science, Engineering and Business for Driving Sustainable Development Goals (SEB4SDG), 57p.

[77]. Osoba, A. M. and Tella, S. A. (2017). Human Capital Variables and Economic Growth in Nigeria: An Interactive Effect. Euro Economica, 36(1), 23-36.

[78]. Parika, A., Singh, B. (2020), How Does Human Capital Affect Economic Growth in India? An Empirical Analysis. Varanasi: Banaras Hindu University. https://mpra.ub.uni-muenchen.de/102428/(Retrieved on 7th August 2024).

[79]. Ranis, G. (2004). The evolution of development thinking: theory and policy. Washington^ eD. CDC: World Bank.https://documents.worldbank.org/en/publication/documents-reports/documentdetail/739731468780580389/the-evolution-of-development-thinking-theory-and-policy (Retrieved on 7th August 2024).

[80]. Rebelo, S.T. (1991). Long-run policy analysis and long-run growth. Journal of Political Economy, 99(3): 500-521.

[81]. Rehman, Z. U., Tariq, M., and Khan, M. A. (2018). The Role of Human Capital in Economic Development in the Selected Central Asian Countries. Dialogue (Pakistan), 13(3): 1-3.

[82]. Romele, L. (2013). Human capital development and economic growth in Latvia. European Scientific Journal, 9(31): 1-6.

[83]. Romer, P. M. (1986). Increasing returns and long-run growth. Journal of Political Economy, 94(5): 1002-1037.

[84]. Romer, P. M. (1990). Endogenous Technological change. Journal of Political Economy, 98(3): 71-102.

[85]. Rostow, W. W. (1960). The Stages of Economic Growth: A Non-Communist Manifesto. Cambridge University Press, Cambridge, 453p.

[86]. Sachs, Jeffrey D. (2005). The End of Poverty: Economic Possibilities for Our Time. Penguin Press, New York, 238p.

[87]. Sanubi, F. A., and Akpotu, N. E. (2015). The Nigeria Education System and Vision 20: 2020-- A Critical Development Planning Perspective. International Journal of Educational Administration and Policy Studies, 7(2): 26-38.

[88]. Schultz, T. (1961), Investment in Human Capital. The American Economic Review, 51(1): 1-17.

[89]. Sen, A. K. (1997). Human capital and human capability. World Development, 25(12), 1959-1961.

[90]. Smith, A. (1776). An Inquiry into the Nature and Causes of the Wealth of Nations. Book 2 - Of the Nature, Accumulation and Employment of Stock. University of Chicago Press, Chicago, 543p.

[91]. Stiglitz, J. E. and Boadway, R. W. (1994). Economics and the Canadian Economy. W. W. Norton and Company, New York, 45p.

[92]. Sulaiman, C., Bala, U., Tijani, B. A., Waziri, S. I., and Maji, I. K. (2015). Human Capital, Technology, and Economic Growth: Evidence from Nigeria. African Journal of Economic Policy 5(4): 1-11.

[93]. Torruam, J. T., Chiawa, M. A., andAbur, C. C. (2014). Cointegration analysis of public expenditure on tertiary education and economic growth in Nigeria. CBN Journal of Applied Statistics, 5 (2): 137–146.

[94]. UNDP (United Nations Development Programme). (2022). Human development report 2022: Uncertain times, unsettled lives – Shaping our future in a transforming world. United Nations Development Programme. https://hdr.undp.org (Retrieved on 7th August 2024).

[95]. UNDP. (2021). Creating a nature-positive future: The contribution of protected areas and other effective area-based conservation measures. UNDP Publishers, New York, 76p.

[96]. UNESCO (2022). Assessment of Basic Education in Sub-Saharan Africa 1990-2000, ADEA Working Group on Educational Statistics. UNDP Publishers, New York, 89p.

[97]. Usman, F. K., and Adeyinka, O. B. (2019). Effect of human capital development on economic growth of ECOWAS member states. Advances in Sciences and Humanities, 5(1): 27-42.

[98]. World Bank. (2020). World Development Indicators database. Washington, DC. http://data.worldbank.org. (Retrieved on 7th August 2024).