Appraisal of Human Capital Development on Nigeria's Economic Growth Rate: The Role of Leadership

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Abstract

The study employs the autoregressive distributed lag cointegration framework, using annual data over the period 1986 to 2020. The objectives of the study were to determine the impact of human capital development on Nigeria's economic growth rate and the role of leadership. The theoretical review adopted are the three theories of Human Capital Theory, Schultz's Theory of Human Capital, and Mincer's theory of Human capital. The methodology adopted for the theoretical framework is the Endogenous Growth Theory is the theoretical foundation for this research. Investment in education in the short-run was seen to have a negative impact on industrial sector while in the long-run both investment in education and secondary school enrolment was seen to have a positive impact on industrial sector growth, also government investment in health was seen have a negative and insignificant impact on industrial sector. Also, in the services sector investment in education was seen to have a negative impact in the short-run while in the long-run Its impact was seen to be positive, for government investment in health its impact was seen to be negative both in the short-run and long-run. The study recommends that both government investment in education and health should be increased to have a positive impact on, Service sector both in the short-run and long-run.

Keywords: *Human Capital, Development, Growth rate, Education, service sector*

Background to the Study

Human capital is an instrument for competitive advantage since it consists of training, knowledge acquisition (education), initiatives, etc. These are geared towards skill acquisition, which is needed to induce productivity. The development of human resources was seen as an issue in the past that is only attributed to the industrialized nations. After different attempts at development failed in Nigeria, renewed attention was directed toward developing human resources, not only passive natural resources (Olusanya, 2016). Human capital refers to a country's human resources, abilities, and capabilities. In contrast, human capital formation refers to obtaining and expanding the number of people with the skills, education, and experience necessary for a country's economic growth and development. For this purpose, effective human capital investment is critical to long-term economic growth and increased productivity (Okumoko et al., 2018).

Investing in health to improve human health is a significant economic development approach. A healthier population promotes higher productivity and income per person, an essential predictor of economic progress (Ssozi & Asongu, 2015). The health-led growth hypothesis explains how health spending contributes to economic development. It believes health to be a form of capital; consequently, health investments can improve labour productivity, resulting in higher earnings and, as a result, improved population well-being (Besir, 2016). It emphasizes that when the labour market is healthy, workers are more motivated to learn new skills and information because they expect to reap long-term benefits. When the labour force is made up of people who are sick, productivity suffers, which explains why different parts of the world are developing at different rates. According to the World Health Organization (2005), Illness and short life expectancy are responsible for 50% of the difference in economic growth between developing and developed countries. A technological shift improves the economic well-being of every population, and part of this change is attributable to breakthroughs in medical science. In investigating the link between health spending and other macroeconomic variables. Indices such as life expectancy are influenced by healthcare spending, which differs by country. This impact on health spending could differ depending on life expectancy distribution (Obrizan & Wehby, 2018).

Furthermore, the health-led growth hypothesis claims that healthcare spending contributes to economic growth through increased physical and human capital accumulation. This leads to the assertion that Healthier people expected to live longer have more abilities to get human capital skills (Hansen, 2013). Hence, the health levels of the population affect not only the domestic product but also the welfare. Nigeria, as a country, is endowed with abundant natural and human resources. Nigeria used to rely solely on physical capital for its growth and development, overlooking the importance of human capital in the development process. Human capital has been recognized as a driver of national development in all countries worldwide (Isola & Alani, 2012). Human capital development has become a central issue for policymakers and practitioners engaged in economic development at the national and regional levels as the global economy shifts towards more knowledge-based sectors (such as manufacturing of Information communication Technology devices, pharmaceuticals, and telecommunication) and skills (Amadeo, 2016). This tends to revamp the Nigerian economy.

Statement of the Problem

One of the reasons for Nigeria's high unemployment, poverty, and unsustainable growth is that technological know-how and skills, accompanied by foreign physical capital, must be improved to meet Nigeria's comprehensive and varied growth and development needs. Developing countries, including Nigeria, are characterized by economic backwardness, which manifests in low labour efficiency, factor immobility, limited specialization in occupations, a lack of entrepreneurship, and traditional values and social institutions that reduce the incentives for economic change.

Only Forty-six tertiary institutions in Nigeria provide education covering all functional areas; out of the 42 million Nigerian Children who ought to be in primary school, less than 24 million are in school. Of the 33.9m children of secondary school age, only 6.4m are in secondary schools. The Pass rate for the 2005 Joint Admission Matriculation Board (JAMB) examinations is about 20%, indicating poor quality of secondary school graduates. The Educational system must be suitable to meet the nation's developmental needs. The Federal higher institutions have suffered decay due to poor planning and mismanagement of funds. Nigerian institutions have emphasized verbal activity rather than skill acquisition and problem-solving activities. The Ministry of Education has embarked on a reform agenda aimed at restructuring and improving the quality of the educational system; however, this improvement has yet to be felt, according to Soludo (2007).

There has been an increase in government expenditures over the years, but Government expenditure on education keeps reducing; in 2015, It was 11% of its total expenditure. This fell to 7% in 2018 and 5.6% in 2020, showing Nigeria's government's importance on human capital development. According to WDI (2020), the Percentage of total budget Allocation to Education in Nigeria has been falling. In 1999, it was 13.14%, it fell to 7.28% in 2003 and 4.09% in 2007, and there was a slight increase to 6% in 2017 and 6.90% in 2020. The figures fall short of the 26% benchmark UNESCO recommended for developing countries and obtained in several African countries (Igbuzor, 2019). This does not portend a good omen for a country that wishes to industrialize. Although the human capital index of Nigeria improved from 0.30% in 2017 to 0.36% in 2020, the human capital index in Nigeria is relatively low compared to countries of the world's developed economies. The life expectancy ratio, which also indicates the quality of a nation's human capital, is low compared to other developed economies of the world. In 1981, life expectancy in Nigeria was 45.6 years; however, there has been some improvement to 47.242 years in 2003, 50.42 years in 2009 and 54.6 years in 2019. According to Soludo (2007), the problem of Human capital in Nigeria was inadequately skilled workers in the financial services sector, mass financial illiteracy level, and absence of industrial-wide certification, but has now transit to poor infrastructure and quality of life, weak leadership, and negative cultural values, near collapse of Nigeria educational system, low level of technology and brain drain.

Investing in our people, Nigeria lags in the significant global socio-economic indicators for health, education, nutrition, and jobs. According to WDI analysis of data from 2012 to 2017, Nigeria is ranked 137 on infant mortality out of 140 countries, 53% Proportion of infant mortality and maternal deaths attributable to malnutrition, 54% Primary net

enrolment ratio in Nigeria, 52 Years of life expectancy in Nigeria, 24% Proportion of children under the age of 5 that are underweight, 10mn School-age children that are out of school, 59% Proportion of births attended by skilled health personnel 17.6mn number of unemployed/underemployed youths, At the same time, economic growth has not been inclusive; today more Nigerians live in poverty than ten years ago. Nigeria's performance on key health indicators, as reviewed by the 2015 Millennium Development Goals Report and Global Competitiveness Report 2016–2017, shows that Nigeria's health system does not provide the level of service required to meet the needs of its population. The prevalence of infectious diseases remains high. Nigeria ranks poorly on the incidence of tuberculosis (128 out of 138 countries) and the prevalence of HIV (123 out of 138 countries). There are 89 deaths per 1,000 live births per under-five child mortality, a level far above the target of 64 deaths per 1,000 live births set in the UN Sustainable Development Goals (SDGs). Some progress has been made over the last 20 years. The maternal mortality rate in 2014 was 576 deaths per 100,000 live births compared to 1,000 deaths per 100,000 live births in 1990. However, Nigeria has a long way to go to meet the United Nations Sustainable Development Goals (SDG) of 70 deaths per 100,000 live births by 2030.

There are several reasons for the poor performance of our healthcare services. These include insufficient financing, inadequate and inequitable access, weak supply chain management, limited human resource capacities, and insufficient coordination, cohesion, and accountability. Investing in the Nigerian people, especially its youth, is imperative to grow and develop the economy sustainably.

Research Questions

The following research questions have been generated to guide this study based on the abovementioned issues.

1. What effect does human capital development have on the infant mortality rate in Nigeria?
2. What effect does human capital development have on the Service sector in Nigeria?

Objectives of the Study

This study aims to determine the relationship between human capital development and its effect on different sectors in Nigeria from 1981 to 2020. The study will evaluate the following specific objectives:

1. To ascertain whether human capital development significantly influences the infant mortality rate in Nigeria.
2. To investigate the effect of Human capital development on the Service sector in Nigeria.

Hypotheses of the Study

The following Hypotheses are tested in the study.

H1: Human capital development has no significant impact on the infant mortality rate in Nigeria.
H2: Human capital development has no significant impact on the Service Sector in Nigeria.

Scope of the study

This study is based on secondary data from the World Development Indicator and CBN Statistical Bulleting, which covers a period of 35 years (1986-2020); this is to achieve a comprehensive analysis of the impact of human capital development on different sectors of the Nigerian economy.

Limitations of the study

This data set used in this study's empirical analysis may constitute the study's main limitation. The data were entirely secondary, obtained from world development indicators and CBN statistical bulletin against primary data. Annual data was used during this study because quarterly data was not available for the data used. The non-availability of quarterly data is also a limitation faced during this study.

Human capital Development

Todaro and Smith (2011) state that human capital development is the productive investments embodied in human persons, including skills, abilities, ideas, health, and locations, often resulting from expenditures on education, on–the–job training programs and medical care. Becker (1967) refers to it as the abilities and qualities of people that make them productive; knowledge, to him, is the more important of these, although other factors, like a sense of punctuality to the state of someone's health, also matter. As construed by the Organization of Economic Co-operation and Development (OECD), aptitude, abilities, versatility, and other features encapsulated in people are noteworthy to productive activities (OECD, 1998).

2.2.5 Human Capital Development in Nigeria

In economies that want to achieve sustainable growth, the necessity of investing in education and health is well understood. The quality of a country's development is determined by its personnel. Nigeria is classified as 'less developed' by international criteria; hence, achieving economic growth is a priority. Indeed, since the filing of the Ashby report in September 1960, the importance of a primary sector such as education has been emphasized in Nigeria. Dr. J.O. Sanusi, the former governor of the Central Bank, stressed the importance of human capital development for Nigeria during his keynote address in 2002, saying that the Nigerian economy must be efficient and competitive in the new world order, where national borders no longer act as barriers to human, material, and capital flows. He stated that one of the most significant challenges confronting Nigeria in this millennium is the issue of capacity building to increase productivity in the economy. According to Ogujiuba and Adeniyi (2005), the government in Nigeria predominantly

regulates education. They summarize how control is broken down from the federal to the state and local government levels. Tertiary education in Nigeria is primarily the federal government's responsibility, though some states and private individuals also fund and run this level of education. Secondary education is mainly a state responsibility, although some are federal secondary schools. Primary education is the responsibility of local governments, but there is also a National Primary Education Commission (NPEC) that develops curricula for corporations, individuals, religious organizations, international organizations, nongovernmental organizations, and community-based organizations with the three tiers of government.

2.2.7 Health and Human Capital Development in Nigeria.

Health is one of the most critical human capital measures significantly contributing to development (OECD & UNDP, 2017). It is critical for increased productivity and societal performance. Investment in health and education, according to the World Bank, "improves labor force productivity, including innovative potential," and "healthier and better educated people are more likely to participate in opportunities created by economic growth." This explains why countries worldwide invest heavily in health facilities and services, allocating a larger share of their budgets. However, Nigeria's financial allocation to the health sector has been meagre (4.50 percent in 2020, which has been further decreased drastically in the revised budget owing to COVID-19) and, in most cases, deteriorating (CBN, 2020), falling short of the African Union's recommendation of 15 percent (see Federal Republic of Nigeria 2001). This is not conducive to sectoral growth. Better healthcare investment leads to improved health outcomes, which may be quantified in various ways. These are (average life expectancy at birth, infant mortality, and under-five mortality). Low infant and under-five mortality rates and a high average life expectancy are indicators of improved health sector performance. Although Nigeria has made progress in these variables, much more effort is needed, particularly when comparing the heights obtained by various countries worldwide. The average life expectancy in several countries is much above 70 years, with some countries registering life expectancies of 80 years or more. In 2018, the average life expectancy in Nigeria was 54.3 years (Azi, 2011). In the same year, life expectancy in countries like Canada and Sweden stayed at 82.0 and 82.6 years, respectively. In various West African countries, such as Benin, Ghana, and Cape Verde, the average life expectancy was 61.5, 63.8, and 72.8 years in 2018. In several counties, infant and under-five mortality rates have fallen to single digits, compared to double and triple digits in Nigeria. This reflects the country's lousy health, necessitating investment in the sector, which will only be possible to achieve sectoral growth.

2.3 Theoretical review

2.3.1 Human Capital Theory

In the labor market, people bring different levels of education, knowledge, skill, abilities, and expectancy to the workplace. According to James (2021): "a more educated, better-trained person is capable of supplying a larger amount of useful, productive effort than one

with less education and training. The value of human capital theory is widely accepted to increase organizational performance, so an organization relies on employees' skills, knowledge, and ability as a key concept of value creation. In the eighteenth century, Adam Smith (1973) initiated an improvement in human capability that is important to production, then a term of human capital was introduced by Theodore W. Schultz (1961 published in the American Economic Review, called investment in human capital. Human capital was widely used after Gary Backer won the novel prizes initiated "human capital theory" stated that a different level of education and training contribute to a different level of wages and salaries; the more knowledge, skill, and ability, the more likely to get a better job (Blair, 2012) and the overall increase in workers' earnings).

2.3.2 Schultz's Theory of Human Capital

In his theory of Human Capital, Schultz posits that knowledge and skill are a form of capital and that this capital is a product of "deliberate investment." Schultz highlights Western countries and explains their increase in national output due to investment in human capital. He also makes a direct link between an increase in investment in human capital. Firstly, Schultz Argued that economists have been afraid to relate to human beings as capital. Schultz believes that the concept of human capital has negative connotations that arise from the American experience of slavery and that society is hypersensitive towards anything that serves as a reminder of that system. For Schultz (1960), however, human capital implies an investment in people. He argues that education, training, and investments in health open opportunities and choices that otherwise would be unavailable to many individuals.

Mincer's theory of Human capital

Jacob Mincer (1922-2006) is one of the most influential economists of the second half of the twentieth century; addressing human capital issues significantly shaped contemporary labour economics. In his theory, Mincer sees human capital as capacities developed through formal and informal education at school and home and through training, experience, and mobility in the labor market (Kai-Joseph, 2007).

Preschool Investments and Women's Education

Inherited abilities, or the "original" endowment, are essential to human capital stock, yet the line between heredity and environment is unclear. Much of the physical and intellectual deficiency shown by infants born in poor conditions can be avoided by improved nutrition of mothers and sanitary environments for childbirth. Similarly, subsequent childcare represents an investment in better adult health and greater productivity of the adult worker. According to Fix (2018b), parents' education significantly influences this process, even after controlling family income and number of siblings. This suggests that childcare is an essential qualitative input into human capital production aside from expenditures on schooling and health. The time inputs are usually those of the mothers who take the primary childcare responsibilities and reduce their market activities to engage in them. The consequent reduction in their earnings is a partial measure of the opportunity costs of these

investments. So viewed, the opportunity cost of childcare is more remarkable for more educated women. The observed positive effects on children's health, intelligence, education, and future earning power are an indirect return on the investment in maternal education. The strong inverse relation between fertility and mothers' education has been documented repeatedly. Thus, the growth of women's education and wages induces fertility declines and increased investments in the resultant smaller number of children per family, according to Fix (2018c). Since, in most countries, educated women spend less time in the labour market than men, the direct earnings benefits of education are more minor for women. From this point of view, providing equal education to both sexes is wasteful. However, educational equality need not be questioned if better-educated mothers produce more significant human capital in children and a better quality of family life, apart from contributing to family money income. Indeed, it is rarely questioned as a matter of public policy.

Human Capital and Population: Human capital and population is a link which enters both the causes and effects of economic-demographic changes. Human capital, or population quality, was left out of Malthusian theory. To Bulman *et al.* (2014), The theory omits any economic motivation. It presents a strictly biological view of mortality as a mechanism that adjusts people's numbers to available resources. The contrary facts of economic growth and the demographic transition have led to a reformulation of population theory in terms of parental decisions about numbers and the "quality of children." In primitive, pre-modern regimes of very high mortality, especially in an agricultural setting, unlimited fertility may be viewed as a rational- response, which is also (or therefore?) culturally sanctioned. Declines in mortality, brought about by public health measures or by higher levels of living, bring about the need for family size decisions, given the family's limited resources. Implicitly, such decisions must consider both material and 'psychic' costs and returns from children. Intentional about human capital formation in children, or child 'quality," plays a part in the decision. Given the family budget, resources spent on "quality" compete with the number of children the family might otherwise want. This trade-off becomes pronounced in the context of economic growth, which raises the payoff to human capital formation.

Becker's Theory of Human Capital

Becker's theory on Human capital included:

- an explanatory framework for the shape of age-earning profiles,
- the concentration of human capital investment at earlier ages and
- the personal distribution of income is based on the accumulation of human capital.

As indicated in his 1962 paper, Becker (1962) started his analysis by slightly overlooking on-the-job training, which was like the focus of others.

2.3.5 The Solow Neoclassical Growth Model

This theory was propounded by Robert Solow of the Massachusetts Institute of Technology, also known as the Solow growth model or exogenous growth model. The

theory seeks to understand the determinants of long-term economic growth by accumulating factor inputs such as physical capital and labour. They revealed a significant contribution from technical progress, defined as an exogenous factor. Solow (1957) and Swan (1956) are among those who first demonstrated this view.

Given the above assumptions, Solow (1957) and Swan (1956) are among those who first demonstrate using the aggregate production function, which exhibits a constant return to scale in labour and reproducible capital.

$Y = f(K, L)$

Where Y is gross domestic product (output), K is the stock of capital (which may include human and physical capital), and L is Labour. Solow (1975) modified the above model by supposing a productivity (or technology) parameter A in the aggregate production function that reflects the current state of technological knowledge.

$Y = f(\bar{A}KL)$

An obvious limitation of the Solow-Swan Model is its failure to account for the cause of technological progress $\bar{A}$. The model shows that technological progress $\bar{A}$ contributes to economic growth, but it does not specify how it takes place (The rate is set exogenously). The justification of Slow (1957) was that technological change originated from knowledge produced by public science bases (e.g., investigating public research institutes), which is outside the domain of the economic system. The summary of the Solow model is as follows.

A sustained rise in capital investment only increases the growth rate temporarily because the ratio of capital to labour increases. However, the marginal product of additional units of capital may (there are diminishing returns) capital and thus, an economy moves back to the long-term growth path, with real GDP growing at the same rate as the growth of the workforce plus a factor to reflect improving productivity.

A Steady-state growth path is reached when output, capital and labour are all growing at the same rate, so output per worker and capital per worker are constant. The Neoclassical economist believed that raising the growth trend requires an increase in the labour supply plus a higher level of productivity of labour and capital. The difference in technological changes between countries is the reason for the variation in growth rate, which is exogenous and independent of the amount of capital investment.

Endogenous Growth Theory

The controversies surrounding the performance of the neoclassical theories in shedding more light on the sources of long-term economic growth have led to dissatisfaction with traditional growth theory. Any increase in economic growth that cannot be attributed to short-term adjustments in either labour or capital stock is ascribed to a third category, the Solow residual. This residual is responsible for half of the historical changes in today's industrial nations. Neoclassical theory credits this bulk of growth to an exogenous or completely independent process of technological progress. Hence, it was impossible to determine the determinants of technological advancement because it is entirely independent of the decisions of economic agents. This dilemma led to the endogenous growth theory or the new growth theory.

The new growth theory provides a theoretical framework for analyzing endogenous growth, persistent economic growth determined by the system governing the production process rather than by forces outside the system. More succinctly, endogenous growth theorists seek to explain the factors determining the size of ₦ or GDP growth rate left unexplained and exogenously determined in the Solow neoclassical growth equation (i.e., the Solow residual).

The Lucas endogenous growth model

Lucas assumes that investing in education leads to human capital production, an essential determinant in growth. He buttresses his stands by distinguishing between the internal effect of human capital, where the individual worker undergoing training becomes more productive, and the external effect, which causes spillover and increases the productivity of capital and other workers in the economy. Investing in human capital rather than physical capital causes the spillover effect, increasing technology levels.

Given $Y = A (k). (H). Hie$

Where Y is the Output, A is the technical coefficient, K and H are the inputs of Physical and Human Capital, and Hi is the average economy's average level of human capital. The parameter e represents the strength of the external effects of human capital on productivity. In the Lucas model, each firm faces a constant return to scale while there are increasing returns for the whole economy. Learning by doing or on-the-job training has a spillover effect that involves human capital. In this model, technology is endogenously provided as a side effect on investment by firms.

2.3.6.2 The Romer Model

Romer's model of *Endogenous Technical Change* of 1990 identifies research specializing in producing ideas. This sector invokes human capital alongside the existing stock of knowledge to produce ideas and new knowledge. To Romer, ideas are more important than natural resources. New knowledge enters the production process through three channels.

Empirical Review

Saheed et al. (2021) examined the idea supporting the relationship between public expenditure and the economy in Nigeria between 2000 and 2016 using Autoregressive distributed lag (ARDL) estimation techniques. It was evident from the result that a long-run relationship exists between public health expenditure and economic growth. The Granger-causality test results indicate neither a uni-directional nor bi-directional relationship between public health expenditure and GDP. However, health expenditure as a share of total government expenditure and population has a uni-directional causal relationship with real GDPAs. As a result, public spending pushes public health spending. It was found that while there is no causal relationship between public health expenditure and GDP, there is evidence of a long-run association between the two. Health insurance should be expanded to cover more people and mobilize more health sector resources. These

factors may result in the necessary impact of healthcare spending on Nigeria's economic growth.

Ifunanyachukwu *et al.* (2019) researched Education, Health Expenditure, and the Quality of Life in Nigeria between 1980-2017. Using the Autoregressive Distributed Lag Model estimation technique, the study discovered that In the Long-term, health spending was effective in stimulating per capita income growth; hence, more funds should be devoted to the sector. Furthermore, education spending has a negative and non-significant association with per capita income, implying that government education spending cannot transfer to improved quality of life. The policy implications of this study include that the Nigerian government should restructure and give more funds to education and health expenditure in its annual budget, based on the above.

Okumoko et al. (2018) studied The Dynamics of Human Capital Development and Industrial Growth in Nigeria, using Time series data spanning the 1976-2016 period on relevant variables were analyzed using descriptive and econometric techniques. The results reveal that the variables got closer to equilibrium in the long run. The findings also demonstrate that recurrent education and health expenditures negatively influence industrial growth. The goodness of fit was encouraging. This article claims that strict adherence to graduate skill acquisition programs, as well as adherence to the UNESCO-mandated minimum financial allocation of 26% for education, will have a favourable impact on industrial growth.

Matthew (2018) study explores the relative impact of human capital formation on economic growth in Nigeria from 1981 to 2014 using time series data of thirty-four (34) years. The study examined the existence of long-run and short-run dynamic links between human capital formation and economic growth in Nigeria using ARDL bound estimation techniques. The findings reveal that in Nigeria, there is a long-run dynamic link between human capital accumulation and economic growth. As a result, it is recommended that, to achieve economic growth, policymakers increase not only the amount of money spent on education but also the percentage of total spending allocated to the sector. Furthermore, improving healthcare personnel development and ensuring adequate distribution of healthcare facilities within the federation are critical.

Paul and Akindele (2016) examined the impact of human capital development on economic growth in Nigeria using time series data spanning from 1980 to 2013. The study employed ARDL Cointegration analysis to estimate the relationship among the variables used; the study established long-run cointegration among the variables. The study's findings revealed a positive long-run relationship among secondary school enrolment, public expenditure on education, life expectancy rate, gross capital formation and economic growth, but it is statistically insignificant. The results also showed a negative long-run relationship among primary and tertiary school enrolment, public expenditure on health and economic growth. In line with the findings, the study recommended that the government should implement the required education and training policy to guarantee quality schooling for primary and tertiary education. The government should also commit more funds to the health sector to enhance human capital development.

Popoola et al. (2019) studied Human capital channels and productivity growth in Nigeria from 1980 to 2017 using the Vector Error Correction Model to examine the joint

short- and long-run causality and long-run behaviour of human capital channels on productivity. The joint short-run and long-run causality results demonstrate no long-run causation, but joint short-run causality was observed in the primary channel, while both joint short-run and long-run causality was detected in the advanced channel. Primary school enrollment/secondary school enrollments have little influence on productivity growth in the long run. However, tertiary institution enrolment and government education spending favourably affect productivity growth. However, the combined contribution of both impacts is less than 1%, indicating that the inputs could be more responsive to productivity. As a result of this finding, Nigerian productivity has remained the same due to human capital building through education and investment in research and development. Investing in research and development is critical to boost productivity and improve the skills required to adapt and disseminate new technology.

Ogunleye et al. (2017) examined the impact of human capital development on the economic growth of Nigeria using an annual time series from 1981 to 2015. The empirical findings indicate that human capital development significantly impacts economic growth, as measured by GDP. According to theory, the indicators of human capital development, such as secondary school enrolment, tertiary school enrolment, total government expenditure on health, and total government expenditure on education, have a positive and statistically significant impact on Nigeria's economic growth, implying that these indicators are critical to the country's economic growth. However, life expectancy and primary school enrollment indicate a negative and statistically insignificant impact on the economic growth of Nigeria. According to the findings, the Nigerian government should ensure that appropriate resources are allocated to the development of human capital in order to boost the country's economic growth. The study also recommended that, in the future, the government and policymakers increase total education spending, ensure adequate budgetary allocation for health spending, and establish a standard across all secondary and tertiary institutions in the country to ensure that proper human capital is required for any individual to become productive and economic growth is boosted.

James (2021) studied the relationship between Human Capital Development, National Security and Agricultural Sector Growth in Nigeria from 1981 to 2017. The Autoregressive Distributed Lag (ARDL) model was used to estimate the relationship between the variables in this investigation. The investigation discovered that there is no long-term link between the variables. According to the study's findings, life expectancy is a major determinant of agriculture sector growth in Nigeria. The study recommends that the government should improve access to healthcare for all Nigerians by strengthening and expanding the National Health Insurance Scheme's operations, increasing funding for alternative medicine research, expanding nutrition, diet, and hygiene education extension programs, and ensuring adequate security for lives and property in the country.

Jaiyeoba (2015) investigates the relationship between investment in education, health, and economic growth in Nigeria, Using time series data from 1982 to 2011. Trend analysis, Johansen cointegration, and the ordinary least square technique were used in this study. However, empirical studies suggest that government spending on education, health, and economic growth have a long-term relationship. Health and education spending, secondary and tertiary enrolment rates, and gross fixed capital creation all show

encouraging signs and are statistically significant (except government expenditure on education and primary enrolment rate). The conclusions of this study have significant consequences for education and health policies, which are currently the subject of heated debate in the country. As a result, this study suggests that to boost growth and lift Nigerians out of poverty, the government should implement policies that encourage major infrastructure and personnel investment in the education and health sectors.

Shahjahan et al. (2016), studied the relationship between human capital development and economic growth, Using annual data between 1981-2014 in Bangladesh, gross domestic product (GDP) as proxy for economic growth, total government expenditure on education and health, and the enrolment pattern of tertiary education, secondary and primary schools as proxy for human capital, this study is an attempt to investigate the long run, short-run and causal relationship among the variables by applying recent advantages in econometric methods such as cointegration and error correction mechanism, Unit root test results show that the variables are integrated of order one and positive long-run relationship between human capital development and economic growth is confirmed by cointegration test result, result from the study shows that the illiteracy rate in Bangladesh is 29% still high compared to others SAARC country and many workers are unskilled, leading to their low productivity; consequently, this study gives an idea about the significance of human capital development to the growth of the economy, the result emphasis on the significance of human capital development as it contribute to economic growth. Thus, policymakers and stakeholders should formulate more realistic policies to develop human capabilities since it is seen as a vital apparatus for economic growth in Bangladesh.

Ethem and Merve (2021) investigated the effects of health spending on economic growth in Turkey. Using data from Turkey's time series from 1975 to 2018. In addition, control variables such as household consumption, life expectancy at birth, trade, and foreign direct investments were included. Vector Error Correction Mechanism (VECM) was used as the estimation technique, and cointegration analysis was used to see if all variables were cointegrated over time. In the short term, the causality test was successfully used to study the relationship between health expenditure and economic growth. The obtained results revealed that the results of the Johansen Cointegration test suggest the long-term existence of cointegration among all variables.

Furthermore, the Granger causality test results show uni-directional causality between health expenditure and economic growth in the short run. The importance of investments in health care services in Turkey is demonstrated by a long-term relationship among related variables and a short-term relationship between health spending and economic growth. As a result, investments in the health sector should be promoted, and the government's budget allocation for health expenses should be increased in Turkey.

Xuewei et al. (2020) studied the Effects of Government Healthcare Expenditure on Economic Growth in 31 provinces in China from 2005 to 2017. the panel data were analyzed by constructing a spatial Durbin model, and the result from the analysis shows that Government healthcare expenditure in China significantly and positively affects economic growth under three spatial weight matrices. The spatial weight of economic distance influences economic growth more significantly compared with the 0–1 spatial

weight and the spatial weight of geographical distance. The total and the direct effects of government healthcare expenditure are significantly positive. Furthermore, the direct effects are significant, whereas the indirect effects show different degrees of significance. Conclusion: The total effect of government healthcare expenditure on economic growth is significant and positive, with direct effects exceeding the indirect ones. Hence, China's government must continue to increase financial investment in public health services to promote high-quality economic growth.

Lloyd (2016) study investigated government spending on education and economic growth in West African countries. Data used covered the period 1990 to 2016 for 15 selected ECOWAS countries. Estimation techniques were the Unit root, cointegration analysis, and casualty test. Findings from the study include that government expenditure on education and economic growth in West African countries were positively and significantly related. Long-term Granger causality exists, while there is no evidence of short-run causality from government educational expenditure to economic growth. This means that in the long run, government educational spending significantly and positively influences economic growth through its impact on human capital. Thus, in the region, such expenditures on education should be encouraged in the public sector. Collaboration amongst the countries will allow resources to be concentrated and knowledge to be shared across the countries in the region and subsequently boost economic growth is a way to encourage it.

Fuhmei (2015) analyzed the impact of healthcare expenditure in a growing economy in OECD countries over the period 1990 to 2009, using the generalized method of moments (GMM) to derive the design of the estimators of the focal variables; the result showed that Increases in health spending effectively lead to higher economic performance when the ratio of health spending to GDP is less than the optimal level of 7.55 percent, according to empirical research. Above that, more significant money only sometimes implies better care. With a 1.87 percent economic growth rate, the absolute health spending in OECD countries is 5.48 percent of GDP.

Ayşen and Hakan (2014) analyzed the relationship between economic growth and human capital between 1990 and 2011 in 15 MENA (the Middle East and North Africa) countries. Panel data for countries were used for the analysis, and health and education were the variables used in capturing human capital. The results show that the GDP per capita will increase with improved education quality. Thus, growth can be much more effective. The result also shows that in terms of health and education, the public spending on human capital has no significant impact on GDP per capita in the Identified 15 MENA Countries; the decision-makers of countries may pay attention if a practical growth process takes part in their agenda for development strategies.

Shuaibu and Oladayo (2016) show in their study on Determinants of Human Capital Development in 33 African countries over 14 years from 2000 to 2013, the data was analyzed using panel unit root, cointegration, and causality techniques resulting from the

Findings show that all the variables are integrated into order one while HCD and its determinants have a stable long-run equilibrium relationship. Specifically, all the variables significantly influence HCD in the long run, whereas the contemporaneous models suggest that only institutions matter; the study concludes that African governments should consider

supporting HCD through sustained investment in the education and health sectors. At the same time, short-term gains may be attained through enhanced institutional quality and infrastructure development.

Sedatand and Mesut (2016) examined the empirical relationship between human capital and economic growth in a panel of 65 countries covering 1967 through 2011; all clusters were analyzed by panel data analysis. The estimate for the coefficient of education and health shows that the effect of human capital on economic growth is positive and statistically significant in developing countries.

Serdar and Ebru (2016) used a panel error correction model on annual data from 1995 to 2012 to study Health Expenditures and Economic Growth in G8 Countries. The panel cointegration results indicate the existence of a long-run equilibrium between the two. The findings show the existence of the growth hypothesis in the short run, while the validity of the growth-detriment hypothesis is confirmed in the long run. It is easy to see why governments in rich countries are opportune to improve the quality of health services far sooner than governments in underdeveloped countries.

Serge and Julius (2017), in their paper, a comparative analysis of the impact of health expenditure between countries in the CEMAC sub-region and five other African countries that achieved the Abuja declaration between 1995 to 2015, data sourced were analysed using panel ordinary least square (OLS), fully modified ordinary least square (FMOLS) and dynamic ordinary least square (DOLS)Results showed that health expenditure has a positive and significant effect on economic growth in both samples, In addition, a long-run relationship also exists between health expenditure and economic growth for both groups of countries. Thus, African Economies are strongly advised to achieve the Abuja target, especially when other socio-economic and political factors are efficient.

METHODOLOGY

Theoretical framework

The Endogenous Growth Theory is the theoretical foundation for this research. Unlike neoclassical models, endogenous growth models openly embrace technology and aim to recognize that technological change, like capital accumulation, depends on economic decisions. In these endogenous specifications, technical change is most typically linked to the stock of human capital, which is explicitly described in terms of educational investments. Including technological change and knowledge dissemination into the neoclassical framework is rendered difficult because of the underlying competitive assumptions, which do not allow for the possibility of increasing returns to scale. Economic growth can be sustained indefinitely in endogenous models because returns on investment in a broad class of both physical and human capital goods do not necessarily reduce over time. Knowledge spillovers among producers and external benefits from increased human capital are both part of this process since they counteract diminishing returns. Growth frameworks have also incorporated research and development concepts and imperfect competition (Romer, 1986) (Barro & Sala-I-Martin, 1995). A large number of endogenous

growth specifications have been put forward. A typical specification for analyzing growth across several countries follows Barro (1997):

$\Delta y = f (y, y^*)$ ……(1)

$y^* = f (Z)$ ……(2)

where Δy is the growth rate of per capita output, y is the current level of per capita output and y* is the long-term or steady-state level of per capita output. For a given value of y, the growth rate rises with y*, which is determined by a wide set of economic, policy and environmental variables. These factors vary per study, but Z in equation (2) often includes variables that measure population (fertility and life expectancy), labor supply, government expenditure and investment, terms of trade, inflation, and, most importantly, for this discussion, educational variables. The following sections explore measurement challenges related to educational variables. According to Barro (2000), any steady-state level y* increase will raise the per capita growth rate, y, over a transition period in this model. So, if the government, for example, improves the business climate by raising spending or increases education investment by increasing secondary school enrolment rates, the target level y* will rise, and y will rise. As actual per capita output rises, diminishing returns will eventually bring the growth rate back to the long-term pace of technological progress. Improved policy has a long-term impact on the level of per capita output rather than just its growth rate. Long-term transitions, on the other hand, can take a long time, and the growth impacts of changes in government policy can last a long time.

3.2 Model Specification

This study institutes an econometric model to illustrate the relationship between human capital development and different sectors in Nigeria. In analyzing the relationship between the variables by incorporating the Autoregressive distributed lag (ARDL), the following are the linear specifications as adapted from Okumoko et al. (2018), James (2021), Ifunanyachukwu (2019).

AGRI = f (SSE, MR, GOVEDU, GOVHLT, LFR) ---------- (3.1)

SERC = f (SSE,MR, GOVEDU, GOVHLT, LFR) ---------- (3.2)

INDL= f (SSE, MR, GOVEDU, GOVHLT, LFR) ---------- (3.3)

From equations (3.1), (3.2), and (3.3), SSE and GOVEDU capture investment in Education while MR and GOVHLT capture investment in health; hence, the above-stated variables capture both arms of human capital, which are the variables of interest.

Specifying in econometric terms and taking logarithm where significant variables are expected, avoiding the problem of substantial variable coefficient, the model is re-specified as thus;

$LAGRC = \alpha 0 + \alpha 1SSE + \alpha 2\ MR + \alpha 3\ LGOVEDU + \alpha 4LGOVHLT + \alpha 5LFR + \mu t$ ------- (3.4)

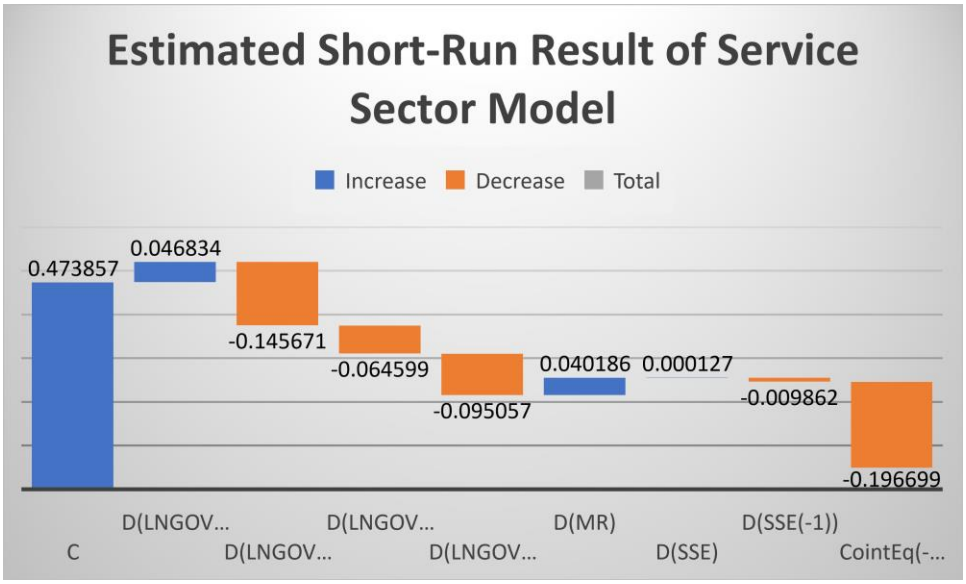
LSERC = α0 + α1SSE + α2 MR+ α3LGOVEDU + α4LGOVHLT+ α5LFR+ μt----- (3.5)
LINDL = α0 + α1SSE + α2 MR+ α3LGOVEDU + α4LGOVHLT+ α5LFR+ μt----- (3.6)
From the preceding, the Autoregressive Distributed Lag form of the version of the estimated model study can be estimated as follows;
D(LAGRI)t = β0 + γt +α0LAGRCt−1 +α1SSE t−1 +α2MR t−1 +α3LGOVEDU t−1 +α4LLGOVHLT t−1 +α5LFR++ πi D(SSE) t−1+ πi D(MR) t−1 υi D(LGOVEDU) t−1 +τi D(LGOVHLT) t−1 +ρi D(LFR) t−1 + κt……(3.7)
D(LSERC)t = β0 + γt +α0LAGRCt−1 +α1SSE t−1 +α2MR t−1 +α3LGOVEDU t−1 +α4LLGOVHLT t−1 +α5LFR++ πi D(SSE) t−1+ πi D(MR) t−1 υi D(LGOVEDU) t−1 +τi D(LGOVHLT) t−1 +ρi D(LFR) t−1+ κt……(3.8)
D(LINDL)t = β0 + γt +α0LAGRCt−1 +α1SSE t−1 +α2MR t−1 +α3LGOVEDU t−1 +α4LLGOVHLT t−1 +α5LFR++ πi D(SSE) t−1+ πi D(MR) t−1 υi D(LGOVEDU) t−1 +τi D(LGOVHLT) t−1 +ρi D(LFR) t−1+ κt……(3.9)
The D is the first difference operator; t is the years 0; p, q, r, s, and uare the maximum lag orders, and κt is the error term.

Presentation and Discussion of Descriptive Statistics Results
The summary statistics of all the variables used in this exercise are presented and discussed as indicated in Table 4.1.1 below.
Table 4.1.3: Descriptive Statistics for Service Sector

	SERV	GOVEDU	GOVHLT	LFR	MR	SSE
Mean	19947.55	92.54093	154.3326	59.34143	101.1514	35.63829
Median	5306.947	34.20000	76.50000	59.99000	100.8000	33.85099
Maximum	72426.66	388.3671	593.4385	62.93626	124.8000	56.20540
Minimum	95.42116	0.041315	0.225005	53.91000	72.20000	23.55180
Std. Dev.	24712.99	115.3454	181.3858	2.450659	19.18792	8.647285
Skewness	1.013699	1.147143	1.054648	-0.894483	-0.032585	0.535027
Kurtosis	2.529592	3.140648	2.892593	2.815400	1.389678	2.303464
Jarque-Bera	6.316950	7.705151	6.505140	4.716943	3.787853	2.377344
Probability	0.042490	0.021225	0.038675	0.094565	0.150480	0.304625
Sum	698164.2	3238.932	5401.641	2076.950	3540.300	1247.340
Sum Sq. Dev.	2.08E+10	452355.4	1118627.	204.1948	12517.99	2542.368
Observations	35	35	35	35	35	35

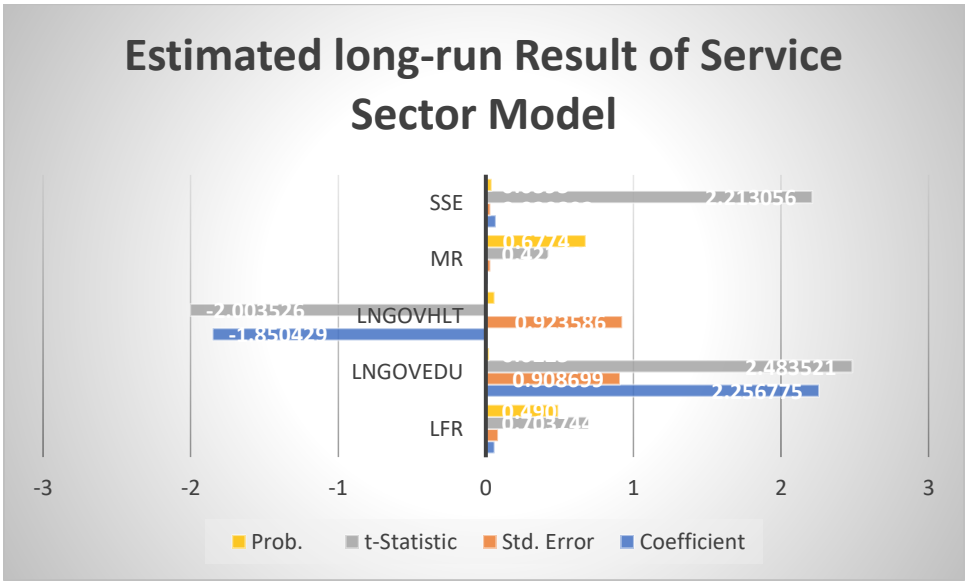
4.6 Estimated ARDL Results

Table 4.6.3.1: Estimated Short-Run Result of Service Sector Model.



Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.473857	0.046536	10.18269	0.0000
D(LNGOVEDU)	0.046834	0.055516	0.843614	0.4094
D(LNGOVEDU(-1))	-0.145671	0.050789	-2.868163	0.0098
D(LNGOVHLT)	-0.064599	0.050013	-1.291647	0.2120
D(LNGOVHLT(-1))	-0.095057	0.042828	-2.219522	0.0388
D(MR)	0.040186	0.013555	2.964667	0.0080
D(SSE)	0.000127	0.003266	0.039029	0.9693
D(SSE(-1))	-0.009862	0.003599	-2.739757	0.0130
CointEq(-1)*	-0.196699	0.026443	-7.438543	0.0000

Source: Author's compilation from Eviews version 10.
Table 4.6.3.2: Estimated Long-run Result of Service Sector Model



Source: Author's compilation from Eviews version 10.

Test of Hypotheses

The study's hypothesis was based on the result obtained from the Agricultural Sector Model, Industrial Sector Model, and Services Sector Model regression analysis.

Hypothesis one:

H1: Human capital development has no significant effect on the infant mortality rate in Nigeria.

Government investment in health was seen to have a negative and significant impact on Agricultural sector growth in the short. In the long run, the Infant mortality rate was seen to have a positive and significant impact on agricultural sector growth. Both government investment in health and Infant Mortality rate represent the healthiness of human capital in the Agricultural sector. These two variables do not align with theoretical postulation from both the short and long-run results. From theory, as the government increases its investment in health, there should be an increase in Agricultural sector growth. Also, for the infant mortality rate, an addition is supposed to lead to a decrease in Agricultural sector growth.

Hypothesis two:

H2: Human capital development has no significant effect on the service sector in Nigeria.

From the service sector empirical result, the short-run effect shows that government investment in education and secondary school enrolment had a positive but insignificant impact on service sector growth. In the long run, Government investment in Education and Secondary School enrollment rates positively and significantly impacted Service Sector growth. The short-run result was not in line with theoretical postulation. However, the long run was in line with theoretical postulation. From theory, it was seen that as a country's investment in Education Increases, the human capital and the productivity of its human resources also increases.

Government investment in health was seen to have a negative and significant impact on Service sector growth in the short run. Also, the infant mortality rate negatively and significantly impacted service sector growth. In the long run, the result was also seen to be negative. Government investment in health represents the healthiness of human capital in the service sector. This is in line with theoretical postulation. The short-run and long-run results show that investment in health affects the service sector. This is not in line with theory. From theory, as the government increases its investment in health, there should be an increase in Service sector growth. Overall, the result shows that the impact of Human capital development on the Industrial sector is statistically significant. Hence, the null hypothesis, which states that trade has no considerable impact on Service sector growth in Nigeria, is rejected, while the alternative hypothesis is accepted.

4.8 Policy Implication of Finding

From the estimation result of the. The long-term investment in health was seen to have a negative though insignificant impact on Agricultural sector growth. The implication is that the current investment in health is not a driver of agricultural sector growth in the short run and long run. On the whole, the Policy implication is the need to increase human capital formation through deliberate investment in education and health to achieve the desired level of Agricultural sector growth.

Finally, in the estimation result of the Service Sector Growth Model, the variable (Government recurrent Investment in education and Secondary School enrolment rate; shows government expenditures on education) in the short-run, a negative and significant impact on Service sector growth was seen while in the long-run there was a positive impact on Service Sector growth. The implication of this on the service sector is that investment in education should be increased to achieve the desired level of service sector growth in the short run.

The government's overall expenditure on health (Government recurrent expenditure on health and infant mortality rate) shows that in the short run, Government Expenditure on health was seen to have a negative and significant impact on service sector growth. Also, in the long run, the result negatively impacts Service sector growth. The implication of this on the Service sector is that for the desired level of Service sector growth, the current investment in health is not a driver of service sector growth as shown in the short-run and long-run. Overall, the Policy implication is the need to increase human capital formation through deliberate investment in education and health to achieve the desired level of Industrial sector growth in the long run.

Summary of Findings

This study has exposed several findings on the Sectorial growth analysis on the impact of human capital development in Nigeria during the period under review. However, the significant findings of this study are enumerated as follows.

The Service Sector growth model showed that investment in human capital development affects service sector growth, as demonstrated by the coefficient of investments in health and education variables. In the long run, only investment in health was seen to harm service sector growth, while investment in education was seen to have a

positive impact on service sector growth. The coefficient of the error correction term in the short run was properly signed and indicates that about 62% of the previous shocks in Agricultural sector growth are offset every 12 months.

5.3 Recommendations

Considering the significant relationship between the Service Sector and observed variables in the study, the study recommends the following.

1. Since the current level of investment in education negates short-run growth of the Agricultural sector, Budgetary allocations to education should be increased to erode the negative effect of recent investment in education has on the Agricultural sector, thereby paving the way for an immediate impact on the increasing the output of the Agricultural sector both in the short-run and long-run for more sustainable agricultural sector growth.
2. The current level of investment in education and the secondary school rate shows a negative impact on industrial sector growth; hence, to have a positive impact on the industrial sector, the government should not only increase its investment in education but investment in technological knowledge from the secondary school level.

5.5 Conclusion

The study investigated sectorial growth analysis of the impact of human capital development in Nigeria. The Autoregressive distributed lag (ARDL) model was estimated to distinguish the short-run from the long-run implications of human capital development on the major sectors, say (Services) of the Nigerian Economy.

The Service Sector growth model showed that human capital development hurts sector growth in the short run, as all the components of human capital development negate their apriori sign expectations. While in the long run, only investment in health was seen to have a positive and significant impact on services sector growth, investment in health was seen to have a negative and significant effect on the service sector, both Infant mortality rate and labour force participation rate was seen to be insignificant in the impact on services sector growth.

Therefore, the study calls for proper investment in human capital development through increment in budgetary allocation to education and health to bring about the needed growth in the Agricultural, Industrial and Service sectors.

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