



The Role of Human Capital Development in Nigeria's Economic Growth

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ABSTRACT

This study examined the role of Human Capital Development in driving the growth of the Nigerian economy, focusing on government expenditures on education, health, and social/community services from 1990 to 2022. The study employed advanced econometric techniques, including descriptive statistics, correlation analysis, unit root tests, Johansen cointegration tests, Vector Error Correction Model (VECM), variance decomposition, and Granger causality tests. The findings indicate a positive correlation between government spending on education, health, and social/community services and real GDP. The Johansen cointegration test revealed a long-term equilibrium relationship among these variables, underscoring the importance of strategic investment in these sectors for sustained economic stability and growth. However, the short-term impact of these expenditures is limited, suggesting that their benefits are more pronounced over time. The Granger causality test further shows that past government expenditures in these areas do not significantly predict future economic growth, implying that other factors—such as corruption, poor policy implementation, and broader economic conditions—also play crucial roles in driving economic outcomes. The study recommends increased and balanced investment in human capital, improved policy implementation, adoption of complementary policies, and a comprehensive short-term policy approach. Additionally, the study advocates for regular monitoring and evaluation of government spending effectiveness and a focus on long-term planning to enhance the positive impact of these expenditures on Nigeria's economic growth.

KEYWORDS: *Human Capital, Health, Education, Social and Community Services, Economic Growth,*

Government Expenditures, Vector Error Correction Model (VECM), Nigerian, Development

I. INTRODUCTION

Human capital development has proven to be crucial for economic growth. Over the years, several studies supporting this assertion have been conducted, but meaningful impact is yet to be felt in developing countries like Nigeria. This is due to the gap that still exists between their rapidly growing population and inadequate capital investments. According to the World Bank Human capital report (2017), we can end extreme poverty and create more inclusive societies by developing human capital.

In Nigeria, the government, as the major driver of economic growth, cannot successfully improve the quality of life the growing population without achieving economic growth. Growth can primarily be achieved by increasing productivity through building and upgrading infrastructure like roads and bridges, innovations, education through trainings, improved research and development, improved health structure, better social welfare services, and adopting advanced technologies to boost productivity. Bakare (2006) observed that poor investment in human capital in Nigeria has been found to be consistent with a low rate of economic growth.

To boost productivity, there is need for effective human resources. Human resources are the most important factor of growth in the production process. Machineries, equipment and technology are products of human innovations and can only be made productive by the human persons. The success of any productive program depends on human creativity and innovative ideas. According to Faghawari and Irejeh (2021), "there can be no growth and development where the people are not the focal point and ultimate beneficiaries of the



economic, political, technological and social policies and programmes implemented by the government.” The number one resource of any country is the human population. Human capital is the foundation block of every country. The significance of human resource to organizational development or nation building cannot be overemphasized because of the value chain they add to policy implementation, economic activities and governance (Jolaosho, et al, 2018; Peter & Matt, 2011).

Human Capital has taken on a larger level of prominence as a driver of investments and economic growth (Eberechi & Onyele, 2023). The United Nations Conference on Trade and Development (UNCTAD; 2020) asserts that “granting access to the hundreds of millions of men and women (worldwide) who are currently denied access to financial services would open up opportunities for the establishment of a sizable depository of savings, investable funds, investment, and consequently the creation of global wealth.”

If human resources are properly harnessed, it propels economic growth. But if they are neglected by the government, it could lead to economic backwardness arising from insurgency, militancy, ceaseless protests and even war/bloodshed. The recent economic hardship and downturn in Nigeria is a major pointer to government insensitivity to human capital development. Faghwari et al (2021) in their review of the UNDP report on Human Capital Development in Nigeria for 2015 and 2016 say the population of Nigeria, according to the last population census in 2006, is over 200 million people. Majority of the population is living below the poverty line and therefore are malnourished and lack access to basic life amenities and education. Hunger, poverty and degradation are overwhelming in several parts of Nigeria. An average youth in the north can neither read nor write elementary English which is a major obstacle to national cohesion and understanding between the north and south. Other issues crippling economic growth and development in Nigeria include the problems of bad government, insecurity, unemployment, poverty, youth’s restiveness, Fulani herdsmen attack and destruction of farm work, ethnic and religious crises, police brutality aka endears protests and many more.

Despite the significant role that human capital development, particularly in education, health and social community service, plays in economic growth, Nigeria continues to struggle with inadequate government investment in these critical

sectors. The government is the primary financier of human capital, yet the current level of expenditure is insufficient to foster the necessary impact on the country's economic growth. This raises a critical question: why has government expenditure on health and education not translated into the expected economic growth?

The health sector faces challenges such as underfunding, inefficient allocation of resources, and a troubling trend of medical professionals emigrating in search of better opportunities. This has resulted in an under-equipped and understaffed healthcare system, undermining the sector's capacity to contribute effectively to economic growth. Similarly, the education sector is plagued by outdated curricula, insufficient funding for research, and a growing disconnect between academic training and the needs of the labor market. This situation has led to the production of graduates who are ill-prepared for the demands of the modern economy, thereby intensifying the problem of unemployment.

Adding to these challenges are the social and community services, which play a crucial role in fostering social welfare and stability. Despite government efforts, these services remain underfunded and poorly managed, with many communities lacking access to basic amenities and support systems. The inefficacy of social and community services undermines social cohesion and productivity, further complicating the task of achieving sustainable economic growth.

The broader economic implications of these issues are severe. The inadequate investment in human capital has contributed to low productivity, limited innovation, and a cycle of low income, low savings, and low investment, all of which hinder economic growth. The persistent underperformance in human capital development, despite government efforts, presents a puzzle: why have these investments failed to yield the expected economic benefits?

This research seeks to address these gaps by exploring the relationship between government expenditure on human capital and the real economic growth of Nigeria, thereby contributing to the understanding of how to better harness human capital for sustainable economic development.

II. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Several studies have been carried out to establish the relationship between human capital development and economic growth in Nigeria. Among such studies, Shobande and Etukomeni



(2016) examined the impact of financing human development and sectorial growth in Nigeria between 1982 and 2016, using the Johansen cointegration technique to test for cointegration among the variables and the Vector Error Correction Model (VECM) is used to determine the speed at which variables adjust to their long-run equilibrium. The analysis demonstrated both long- and short-term relationships between financing human capital development and sectorial growth in the period reviewed. It is argued that “for an active foundation for sustainable sectorial growth and development, financing human capital development across each unit is urgently required through increased budgetary allocation for both health and educational sectors, as these are key components of human capital development in a nation.”

Oloke et al. (2023) examine the effect on human capital development and economic growth in Nigeria, secondary data from Central Bank of Nigeria (CBN) statistical bulletins spanning 1981 to 2020 were utilized. Expenditures on Agriculture (AGR), Civil Service (CIVSER), Education (EDU), Health (HLTH), Manufacturing (MANU), and Transportation (TRANSP) served as proxies for human capital investment, while Gross Domestic Product (GDP) was used as a proxy for economic growth. Structural break analysis revealed no structural breaks within the study period. Expenditures on the civil service, education, manufacturing, and health sectors were found to significantly impact economic growth, while those on agriculture and transportation were not. With R-squared and adjusted R-squared values of 96% and 95%, respectively, the study suggested a strong correlation between human capital development and economic growth in Nigeria over the forty-year period.

Awogbemi (2021) explored the impact of human capital development on economic growth in Nigeria using contextual analysis. The study highlighted a “clear and evident link between the development of human capital and economic growth in Nigeria” and recommended increasing private sector investment in health and education to complement government efforts in providing human capital services. This recommendation assumes that government spending alone in the health sector may be insufficient to address health challenges effectively. The results also indicate that education expenditures have a substantial impact on economic growth, while expenditures on social and community services, along with school enrollment

rates, contribute insignificantly. The study recommended that governments at all levels focus on developing human capital by enhancing expenditures on education and social services. Also, increasing welfare programs for healthcare workers to lower the misery index in Nigeria and prevent a mass flight of doctors and other health professionals from the country is important, as this would improve the quality of life for Nigerians. The government should launch major initiatives that create job opportunities for Nigerian graduates, as many young people today participate in various social vices like prostitution, armed robbery, and kidnapping due to unemployment.

Adetula et al. (2017) studied the impact of investment in education on economic development in Nigeria. Data were analyzed using the OLS technique. Results indicated that “investment in education contributed significantly to economic development.” The study had its weakness in using GDP as a proxy for economic development, but it was found useful as a guide for the conduct and advancement of the present study.

Shobande et al. (2014) examined the impact of human capital investment on the economic development of Nigeria, using the Solow augmented model, which incorporated the role of human capital as a yardstick for economic development to investigate the link between human capital investment and economic development in Nigeria. Annual time series data sourced from the Central Bank of Nigeria’s Statistical Bulletin from 1970 to 2011 were used. The ordinary least square method (OLS), Augmented DickeyFuller test (ADF), Johansen cointegration, and error correction model (ECM) were employed as estimation techniques. Pre-estimation findings showed that “all variables are non-mean reverting at level and do not converge to their longrun equilibrium until they were first differenced.” The empirical findings indicated a “negative shortrun relationship between economic development and human capital investment in Nigeria.” It recommended that Nigeria should consider education beyond secondary school enrollment if investment in human capital is to produce meaningful macroeconomic changes.

Ejedegba et al. (2017) examined human capital formation and the economic development process using a bounds testing approach. The study applied the cointegration test to estimate the longrun relationship between human capital (proxied by federal government expenditure on health, education, and other social services) and economic



growth in Nigeria. The study revealed that the impact of government expenditure on attaining sustainable economic growth in Nigeria is low. It posits that the government should make a conscious effort to encourage the establishment of laborintensive industries.

Halidu (2016) highlights human capital development in the Nigerian university system. The study adopts content analysis using the retrospective design. The study reveals that human capital in Nigerian public universities is deficient. Motivation for intrinsic job satisfaction, enrichment, and enlargement is at its lowest ebb. Although the investment in human capital is inadequate, the Nigerian government at all levels is not adequately utilizing the little human capital in these universities to transform the Nigerian economy to growth and development. The study recommends that to successfully confront the challenges of development, there must be a paradigm shift, reorganization, and redirection of the Nigerian university system to undertake three major tasks: acquire and adapt global knowledge and create knowledge locally, invest in human capital to increase the ability to absorb and use knowledge, and invest in technologies to facilitate both acquisition and absorption of knowledge.

Omodero and Azubuike (2016) carried out an empirical review of government expenditure on education and economic development in Nigeria. The study spanned from 2000 to 2015. Data were analyzed using the OLS technique. The results also indicate that education expenditures have a substantial impact on economic growth, while expenditures on social and community services, along with school enrollment rates, contribute insignificantly. The study recommended that governments at all levels should focus on developing human capital by enhancing expenditures on education and social services.

Njoku and Onyegbula (2017) examined human capital development as a strategy for sustainable development in Nigeria's education system, revealing that education is an essential tool for human capital development, contributing significantly to economic growth, productivity, and sustainable development.

Amadi and Alolote (2019) investigated human capital investment as a driver of sustainable economic development in Nigeria, covering the period from 1986 to 2017. Using the Ordinary Least Squares (OLS) technique, the study found a positive

relationship between real GDP and the explanatory variables, affirming the role of human capital investment in fostering economic growth.

Theoretical Framework

There are numbers of theories that try to explain the relationship between human capital and economic growth. This study is hinged on both the endogenous and neoclassical growth theories but relies heavily on the endogenous growth theory, because it lays more emphasis on investing in human capital towards achieving economic growth. The Endogenous growth theory suggests that economic growth is primarily driven by internal factors such as human capital, innovation, technological progress, and institutional factors, rather than external factors such as capital accumulation or exogenous technological change. That's is, endogenous growth theory emphasizes the role of human capital accumulation in driving economic growth. Investments in education and training contribute to higher productivity levels, innovation, and technological advancement, leading to sustained economic growth. Luca (1988).

In the production function, the endogenous growth model is given thus:

$$Y = AK^a H^{1-a}$$

Where:

- (Y) is total output (or GDP),
- (A) is a constant that represents the level of technology,
- (K) is physical capital (like machinery, buildings, etc.),
- (H) is human capital (education, skills, etc.),
- (a) is a parameter that shows the output elasticity with respect to physical capital (usually between 0 and 1).

Human capital will be discussed within the context of health, education, and social/other community services.

Education Human Capital

Education human capital focuses on the knowledge, skills, and competencies acquired through formal education and training. It includes not only academic learning but also practical skills relevant to various professions and industries. Studies such as those by Hanushek and Woessmann (2020), and Bils and Klenow (2000), have shown the handsome returns to economic growth through investment in basic education, research, training, and learning. These studies highlight how improvements in education quality, increased



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For Nigeria, The United Nation's annual results on education and human capital development (2022) emphasize the critical role of education in advancing human development and achieving sustainable economic growth. According to the report for Nigeria, there is a strong focus on improving educational outcomes to bolster human capital. This aligns with broader strategies under the UN's cooperation framework, which supports inclusive, equitable human development and decent employment opportunities in Nigeria. The report also highlights the significant challenges that Nigeria faces in these areas, including gender inequality in education and access to quality learning resources.

Moreover, the UNDP's Nigeria Country Programme (2023-2027) prioritizes investment in education and skill-building to foster sustainable development and increase economic resilience. These initiatives aim to help Nigeria achieve its Vision 2030 and the Sustainable Development Goals (SDGs), which include reducing poverty, boosting youth employment, and enhancing women's participation in the workforce.

Health Human Capital

Health human capital refers to the physical and mental well-being of individuals, which significantly impacts their productivity, quality of life, and enabling them to contribute to the economy. Researchers like Adebisi et al. (2020), Olayemi and Olaniyan (2017) have explored the connection between health and human capital. Their study focuses on the importance of healthcare investments in strengthening human capital development in Nigeria. Adebisi (2020) argues that

poor health systems undermine educational achievements and workforce productivity, negatively impacting the nation's human capital. The analysis emphasizes the importance of improving public health infrastructure as a necessary pathway for enhancing the quality of human capital, which is vital for national development

Olayemi and Olaniyan (2017) also explored the relationship between health outcomes and economic growth in Nigeria, linking human capital development to health investments, using econometric models to demonstrate how investments in healthcare positively affect human capital and subsequently contribute to higher economic productivity. They underscore the role of health as a critical component of human capital.

Economic growth and development depend on a healthy population. The Lancet Commission on Investing in Health (2011) reported that around one quarter of economic growth between 2000 and 2011 in low and middle-income countries resulted from the value of improvements to health. Good health is a necessary condition for school attendance, since a child has to be healthy to endure the rigours of schooling. Also, healthier students, in contrast to their less healthy counterparts, have lower malingering and higher cognitive functioning, and thus receive a better education for a given level of schooling which in turn guarantees higher earning over a longer period of time. Sound health enhances worker's productivity through the spill-over effects on their physical and mental abilities.

Several cross-country studies have shown a strong link between measures of aggregate health such as life expectancy or child mortality, and growth per capita. Cutler & Lleras-Muney (2016) argue that reductions in mortality rates and improvements in chronic disease management have enhanced the educational outcomes and workforce participation rates of the population. This is in line with the work of Omotola & Akinyemi (2015) who also investigated the link between maternal and child health outcomes and long-term human capital development. The study highlights how maternal health services and child healthcare investments significantly contribute to the building of a robust workforce, which is key to human capital development in Nigeria. The authors suggest that reducing maternal and child mortality is crucial for sustainable development.



Improved health increases both the magnitude and quality of the labour force, and thereby leading to economic growth. It is presumed that healthy workers work harder and longer and reason more plainly than those who are less gifted with good health. Good health can also minimize the incidence of poverty through higher labour participation and reduction in cost of medical services, thus releasing income for other welfare-improving consumption. This condition holds irrespective of whether the worker is skilled or unskilled.

Social and Community Service Human Capital

Human capital in terms of social and community service, encompasses relationships, networks, and social connections within communities and societies. It recognizes the value of social capital in human development and economic growth. This component encompasses skills, knowledge, and abilities related to social interactions, community engagement, and the provision of services that contribute to societal well-being.

Social and community services are crucial components of human capital development, as evidenced by both global and Nigerian studies. Internationally, researchers like Ridge & Millar (2017), examined how social services, such as childcare support and social housing, impact human capital development, particularly among children from low-income families in the UK. The study highlights how early interventions in social services can positively influence educational and social outcomes. Bender & Knoss (2021) addressed the role of social welfare systems in fostering human capital development in Germany. The research analysed how social services like unemployment benefits, pensions, and public education help maintain workforce productivity and economic stability, contributing to human capital formation. In Nigeria, researchers such as Okafor & Anichebe (2019); Adepoju & Salami (2021) stressed the importance of investing in social services to drive human capital development, especially in underserved areas. These studies highlight the role

of government and community-driven initiatives in promoting social welfare for long-term economic growth and human capital formation.

Individuals with strong social and community service human capital possess skills such as communication, empathy, problem-solving, and cultural competence, among others. These skills enable them to work effectively with diverse populations, contribute positively to community development, and foster social cohesion. In essence, social and community service plays a crucial role in enhancing overall societal well-being and promoting sustainable development.

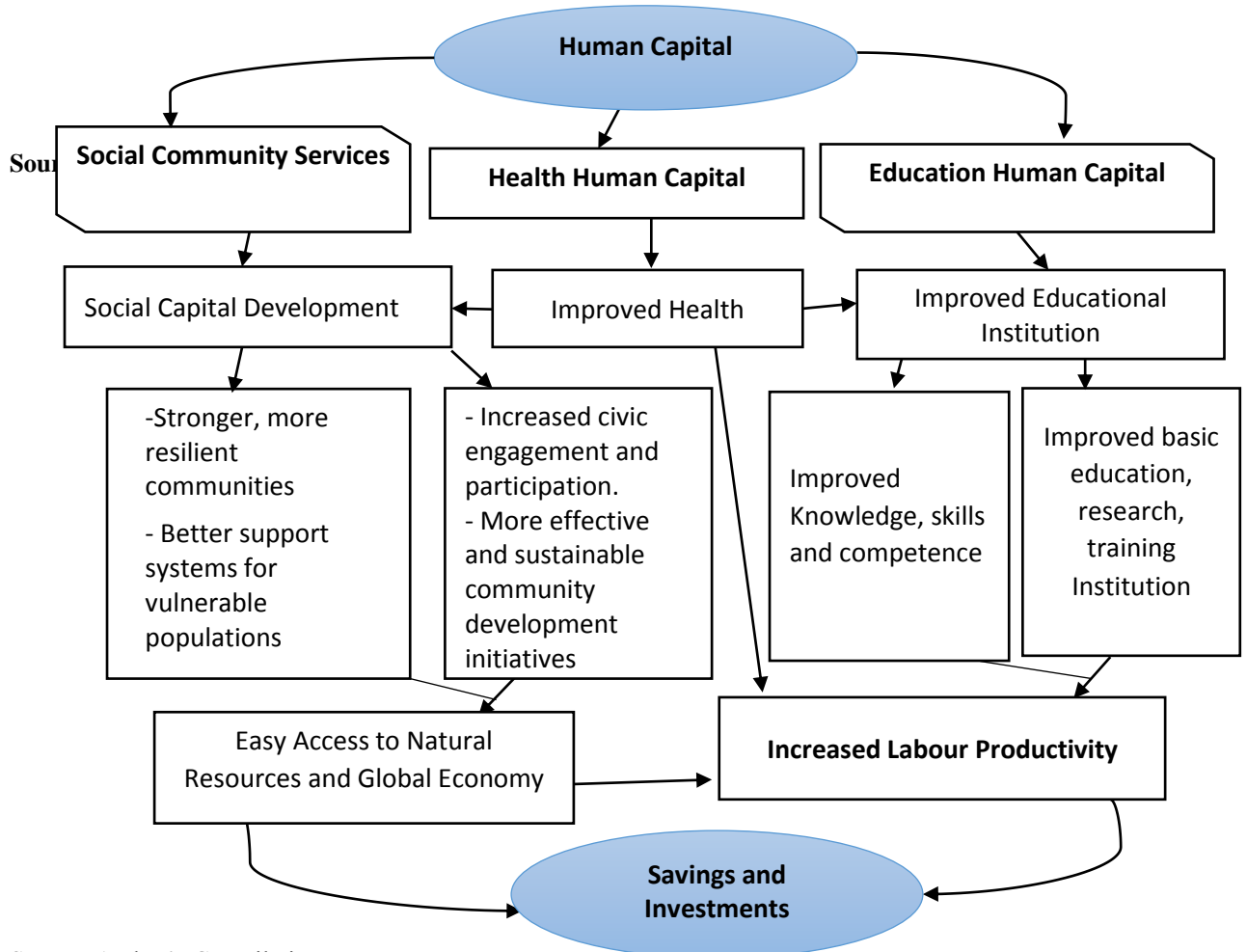
Investing in human capital through social and community services can lead to:

1. Stronger, more resilient communities.
2. Improved social cohesion and inclusivity.
3. Enhanced quality of life and well-being.
4. Increased civic engagement and participation.
5. More effective and sustainable community development initiatives.
6. Greater cultural and artistic expression and preservation.
7. Better support systems for vulnerable populations.
8. Improved environmental sustainability and awareness.
9. Enhanced public health and safety.
10. More skilled and educated community members.

Social community services are indeed an aspect of human capital because they contribute significantly to the development of skills, knowledge, health, and social networks. Their impact on the Nigerian economy is substantial, as they enhance productivity, reduce poverty and inequality, foster social cohesion, promote economic diversification, attract investment, and stimulate innovation and entrepreneurship. Thus, investing in social and community services is essential for sustainable economic growth and development in Nigeria. By recognizing and investing in human capital in social and community services, we can empower individuals and communities to thrive and reach their full potential.



Fig. 1 Showing Relationships between Social Community Services, Health and Education Human Capital and Economic Growth.



Source: Author's Compilation

The above diagram illustrates the interconnectedness of various factors that influence human capital development and its impact on the Nigerian economy. Human Capital is the aggregate of health human capital, education human capital and social community services. These components are crucial for the holistic development of human resources in Nigeria.

Investment in social community services leads to social capital development, which leads to stronger, more resilient communities with better support systems for vulnerable populations. This fosters improved social cohesion and inclusivity. Stronger, more resilient communities leads to communities that can withstand economic shocks and support each other, better support systems for vulnerable populations, mechanisms to support those in need, leading to overall societal well-being,

improved social cohesion and inclusivity development. This in turn, leads to reduced social inequalities and enhanced integration, increased civic engagement and participation, which leads to higher levels of community involvement in governance and decision-making. More effective and sustainable community development initiatives leads to long-term, impactful projects that benefit the community. The economic impact on the economy will be easier access to natural resources and the global economy, which leads to increased labor productivity, savings and investments.

Investment in education human capital will lead to improved educational institutions, that is investment in educational infrastructure and quality leads to better outcomes in knowledge, skills, and competencies. The outcomes will be improved knowledge, skills, and competence. A more



educated workforce is capable of higher productivity. Improved basic education, research, training institutions is the foundations for advanced learning and innovation. The economic impact will be increased labor productivity, which translates into higher savings and investment, as a more skilled workforce can generate more income and thus save and invest more.

Investment in health human capital will lead to improved health institutions. Investment in healthcare infrastructure and services leads to a healthier population. The economic outcomes will be healthier workforce, reduced absenteeism and higher efficiency.

There is also an interconnection with education and social capital. Healthy individuals can better engage in educational activities and social initiatives. The economic impact will be increased labor productivity and higher savings and investment as healthier individuals can work more effectively and for longer periods.

Impact on the Nigerian Economy

1. Increased Labor Productivity: By improving social services, education, and health, Nigeria can significantly boost the productivity of its labor force.
2. Savings and Investment: With higher productivity, individuals and businesses can save more and invest in further economic activities, leading to sustainable economic growth.
3. Inclusive Development: Improved social cohesion and inclusivity ensure that economic benefits are more widely distributed, reducing inequality and fostering a more stable so.
4. Global Integration: Enhanced human capital makes Nigeria more competitive in the global economy, attracting foreign investment and facilitating access to international market

III. METHODOLOGY AND DATA ESTIMATION

Data Collection

Data were collected from the National Bureau of Statistics and the Central Bank of Nigeria, covering the period from 1990 to 2022. The variables of interest include government expenditure on education, health, and social/community services, as well as real GDP.

Model Specification

According to Mankiw et al. (1992) labor is non-homogeneous in the production process due to varying levels of human capital investment over time. This aligns with the model by Oluwatobi and Olurinola (2023), which this research adopts with slight modification. In this study, Real GDP (RGDP) is the dependent variable, while government expenditure on health, education, and social and community services serve as explanatory variables. The human capital model is thus endogenously expressed in this framework:

$$RGDP = F(GEXE, GEH, GESCS, U_i) \dots \dots \dots (1)$$

Transforming equation (1) gives:

$$RGDP_t = b_0 + b_1GEXE_t + b_2GEH_t + b_3GESSt + et. \dots \dots \dots (2). \text{ Where;}$$

b_0 = a constant

b_1, b_2 and, b_3 = coefficient of the independent variables

RGDP_t = Real Gross Domestic Product

GEE_t = Government expenditure on education

GEH_t = Government expenditure on health

GESSt = Government expenditure on social community service

Estimation Technique

The OLS regression was used to estimate our model in the context of a multivariate model, in which we include all independent variables (GEE, GEH, and GESS) simultaneously to better capture the combined impact of government expenditure on education, health, and social services on RGDP. This model allows us to control for the effects of each expenditure type while analyzing their collective influence on RGDP.

The OLS regression estimates the coefficients for each independent variable, indicating the strength and direction of their relationship with RGDP. A positive coefficient suggests a positive relationship (an increase in the independent variable leads to an increase in RGDP), while a negative coefficient suggests a negative relationship (an increase in the independent variable leads to a decrease in RGDP). The magnitude of the coefficient indicates the relative importance of each independent variable in explaining changes in RGDP, holding other variables constant.

Additionally, to ensure the robustness of the results and account for the stationarity of the data, the Augmented Dickey-Fuller (ADF) test will be applied. Finally, the Vector Error Correction Model



(VECM) was utilized to explore the long-run equilibrium relationships among the variables.

IV. ECONOMETRICS ANALYSIS

Table 1: Summary of Correlation Analysis

	<i>RGDP</i>	<i>GEE</i>	<i>GEH</i>	<i>GESCS</i>
<i>RGDP</i>	1			
<i>GEE</i>	0.98	1		
<i>GEH</i>	0.98	0.99	1	
<i>GESCS</i>	0.96	0.96	0.95	1

Source: Author's Computation (Eviews-12)

The Correlation analysis provide relevant information on the degree of correlation among the variables adopted in the analysis. The results reveal that government expenditure on education exhibits a positive correlation to real gross domestic product with a correlation value of 0.98. Government

expenditure on health exhibits a positive correlation on real gross domestic product with correlation value of 0.98. Government expenditure on social and community services exhibits a positive correlation to real gross domestic product with correlation value of 0.96, indicating that higher expenditures in these areas are associated with increased economic growth.

Unit Root Test

The Augmented Dickey Fuller (ADF) Unit root test was adopted in this study to test for stationarity of the variables. The null hypothesis is that the variables are non-stationary. If the value of the ADF statistics is less than or equal to the critical value, then the null hypothesis is rejected and it means that the variables are stationary at levels. The Unit root tests reveals that all variables (*RGDP*, *GEE*, *GEH*, *GESCS*) are non-stationary at levels but stationary after first differencing, indicating integration of order 1.

Table 2: Summary of Unit Root Test

Variable	Augmented Dickey Fuller test		Summary
	Level	1st Difference	
Real GDP (<i>RGDP</i>)	3.46	-4.97**	I (1)
Government Expenditure on Education (<i>GEE</i>)	-1.08	-5.17**	I (1)
Government Expenditure on Health (<i>GEJ</i>)	-1.65	-5.50**	I (1)
Government Expenditure in Social and Community Services (<i>GESCS</i>)	-1.82	-7.55**	I (1)

Source: Author's Computation, using E-views 12

Cointegration Test

A cointegration test as performed using the Unrestricted Cointegration Rank Test (Trace) and the Maximum Eigenvalue Test are presented. These tests are conducted to determine the number of cointegrating relationships among the variables. Cointegration implies that despite being individually non-stationary, a linear combination of the variables is stationary, indicating a long-run equilibrium

relationship. Both the Trace test and the Maximum Eigen value test consistently indicate the presence of three cointegrating equations among the variables. This implies that there are three long-run equilibrium relationships in the system, suggesting that despite short-term deviations, the variables (*RGDP*, *GEE*, *GEJ*, and *GESCS*) move together in the long run.

Table 3: Summary of Cointegration estimate

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistics	0.05 Critical Value	Prob.**
None*	0.87	112.76	47.85	0
At most 1*	0.6	51.24	29.79	0
At most 2*	0.5	23.01	15.49	0
At most 3	0.06	2.11	3.84	0.14
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
None*	0.87	61.52	27.58	0



At most 1*	0.6	28.23	21.13	0
At most 2*	0.5	20.89	14.26	0
At most 3	0.06	2.11	3.84	0.14

Source: Author's Computation, using E-views 12

Vector Autoregressive Estimation (VAR)

Based on the different orders of integration, we adopt the Vector Autoregressive Estimation (VAR) technique. The result reveals a significant long run relation associations between RGDP and government expenditures. However, short-term dynamics are significant only for changes in RGDP.

The result of the Vector Error Correction Model (VECM), include both the cointegrating equation and the short-term dynamics. The coefficients of the cointegrating equation suggest that in the long run, a 1% increase in real GDP

(LNRGDP) is associated with a 2.10% increase in government expenditure on education (LNGEE), a 7.67% increase in government expenditure on health (LNGEH), and a 0.90% increase in government expenditure in social and community services (LNGESCS). The constant term (-3.83) adjusts the equation to balance the relationship. The error correction term is significant and negative (-0.11), indicating that 11% of the disequilibrium from the previous period is corrected in the current period. This suggests a relatively slow adjustment process towards the long-run equilibrium.

Table 4: Summary of VAR Estimate

Dependent Variable: LNRGDP			
Cointegrating Eq:		CointEq1	
LNRGDP (-1)		1	
LNGEE (-1)		2.10** -0.3 [7.06]	
LNGEH (-1)		-2.75** -0.27 [-9.90]	
LNGESCS (-1)		0.005 -0.05 [0.10]	
C		-8.83	
Error Correction	Coefficient	Std. Error	t-Statistic
CointEq1	-0.11	0.04	-2.74**
D (LNRGDP (-1))	0.45	0.15	2.89**
D (LNGEE (-1))	-0.02	0.06	-0.46
D (LNGEH (-1))	-0.03	0.08	-0.39
D (LNGESCS (-1))	-0.0004	0.01	-0.02
C	0.11	0.03	3.30**
R-Squared			0.72
Adj. R-Squared			0.66

Source: Author's Computation, using E-views 12

In the short term, only changes in real GDP have a significant impact, while changes in government expenditures on education, health, and social/community services do not show significant short-term effects. This implies that while government spending in these areas is crucial for long-term economic stability and growth, it does not significantly influence immediate economic growth.

VAR Granger Causality

The Granger causality test results indicate whether past values of one variable can help predict the future values of another variable. Based on the above results, the Granger causality test results suggest that past government expenditures in education, health, and social and community services do not have significant predictive power for future real GDP. This might imply that other factors beyond these types of government spending, are



more influential in determining the future path of real GDP. This does not necessarily mean that these expenditures are unimportant, rather their effects on GDP are indirect, in the long-term. Furthermore, the relationship between government spending and economic growth is complex and might be influenced by various factors, including the efficiency of spending, the economic context, and complementary policies. These results highlight the importance of considering a broader range of variables and longer time horizons when evaluating the impact of government expenditures on economic growth.

Table 5: Summary of Granger Causality Test

Dependent variable: D(LNLRGDP)

Excluded	Chi-sq	df	Prob.
D(LNGEE)	0.213073	1	0.6444
D(LNGEH)	0.158329	1	0.6907
D(LNGESCS)	0.000582	1	0.9807
All	2.434767	3	0.4872

Source: Author's Computation, using E-views 12

V. CONCLUSION AND RECOMMENDATIONS

This study examines the impact of government expenditure on human capital—specifically in education, health, and social and community services—on Nigeria's economic growth (measured by Real GDP) over the period from 1990 to 2022. The findings reveal a positive correlation between these expenditures and real GDP, with significant long-term effects. Cointegration tests indicate a long-run equilibrium relationship, while the VECM analysis shows that the benefits of these expenditures may take time to materialize. However, Granger causality tests suggest that other factors also influence economic growth.

On a general note, the findings revealed that government spending on education, health, and social services is crucial for Nigeria's economic growth. Education and social services have had a significant positive impact, but health spending has been less effective due to underfunding and a preference for private healthcare. To boost economic growth, the government should prioritize these areas, increase funding for public health, and adopt a strategic approach to human capital development.

Our recommendations based on these findings are; government should increase and balance its investment in human capital; there should be measures for improved policy

implementation, monitoring and evaluations. Government and policy makers should address corruption and ensure efficient use of funds, prioritize focusing on long-term planning on human capital. Also comprehensive short-term policy approach should be employed for immediate impact. And lastly, the issues of social and community services would be addressed, the minimal impact suggests a need to evaluate and optimize these expenditures to better contribute to economic growth.

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