Public Sector Investment on Human Capital and Sustainable Development in Nigeria

Abiola, Aina Lydia

Department of Economics, Ajayi Crowther University, Oyo, Oyo State Nigeria

DOI: https://dx.doi.org/10.47772/IJRISS.2025.90500004

Received: 17 April 2025; Accepted: 21 April 2025; Published: 27 May 2025

ABSTRACT

In recent years, the link between public sector investment in human capital and sustainable development has gained increasing attention. However, despite various policy interventions, Nigeria continues to grapple with persistent challenges associated with human capital development, particularly in education and healthcare. These deficiencies hindered progress in achieving sustainable development and have motivated the investigation into the direction of causality and the impact of public sector investment in human capital on sustainable development in Nigeria from 1980 to 2021. The Granger causality test and Augmented Autoregressive Distributed Lag (ARDL) estimation techniques were used. The findings revealed that government investment in health and education positively influenced sustainable development. The results indicated a unidirectional causality from sustainable development to educational expenditure and a bidirectional causality between sustainable development and government expenditure on health. Based on these findings, the study recommended that the Nigerian government prioritize sustained investment in education and healthcare services to promote sustainable development.

Keywords: Public Sector Investment, Human Capital, Education Expenditure, Health Expenditure, Sustainable Development, Augmented Autoregressive Distributed Lag model JEL Classification: H52, Q01

INTRODUCTION

In recent years, the interaction between human capital development and public sector expenditure has gained traction in the literature, particularly in a resource-constrained country such as Nigeria (Olopade et al., 2023). The literature recognizes that investment in education, health, and other social services is essential for fostering economic growth and development (Bassey et al., 2022; Ilonze et al., 2023). Consequently, public sector investment in human capital has become a critical strategy for countries seeking to achieve sustainable development. Sustainable development, on the other hand, is a complex concept that seeks to address the needs of the present generation without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development (WCED), 1987). Sustainable development involves balancing economic growth, social well-being, and environmental protection, and ensuring that development is sustainable over the long term.

Nigeria, like many other developing countries, faces significant challenges in the area of human capital development and sustainable development (Ilonze et al., 2023; Ofosuhene, 2022). Despite having one of the largest economies in Africa, the country is classified as a low human development country, characterized by high levels of poverty, inequality, and unemployment (UNDP, 2022). These weaknesses are compounded by a range of socio-economic and political challenges, including corruption, insecurity, and inadequate infrastructure (Balana & Oyeyemi, 2022). These challenges have impeded Nigeria's ability to achieve its development goals, including the Sustainable Development Goals (SDGs). Adopted worldwide in 2015, the SDGs, provide a roadmap for sustainable development by setting targets in areas such as poverty reduction, education, health, gender equality, and environmental protection. Nigeria, like other countries, has committed to achieving these goals by 2030, but progress has been slow. The question raised is whether the pace of development can be increased by public sector investment in human capital.

The state of economic growth in Nigeria has been characterized by volatility with alternating periods of growth

and recession. Despite the country's vast natural resources and human capital potential, the country has struggled to achieve sustained economic growth due to inadequate investment in human capital development. This is reflected in low public expenditure on health and education, which has resulted in poor health and educational outcomes. Nigeria currently spends only a small percentage of its GDP on these critical sectors, resulting in weak human capital indicators.

Nigeria, as one of the most populous countries in Africa, faces significant challenges in the area of human capital development. Despite a large and growing youth population, access to quality education and healthcare remains limited for a segment of the population. Public investment in these sectors is relatively low by global standards. In 2020, Nigeria allocated only 4.1% of its GDP to education and 3.9% to health. This underfunding trend has contributed to low literacy rates, high mortality rates, and weak human capital outcomes. To address these challenges and align with the Sustainable Development Goals (SDGs), the government introduced several policy initiatives such as the National Health Act of 2014 to improve healthcare quality and accessibility, and the National Social Investment Programme launched in 2016 to expand support for education, healthcare, and social welfare programmes. Although the country has made some progress in education and health, it still lags behind other African countries in terms of access to quality education and healthcare. According to the National Bureau of Statistics, only about 44% of Nigerians have access to basic healthcare services, and the country has one of the highest rates of out-of-school children in the world. The United Nations Children's Fund (UNICEF) estimates that 10.5 million children are out of school in Nigeria, which is the highest rate in the world (UNICEF, 2021).

Despite the implementation of various policies, the state of human capital investment in Nigeria remains inadequate, and the nation continues to face significant challenges in achieving the Sustainable Development Goals (SDGs). This performance has been attributed to poor policy implementation, corruption, inadequate funding (Ilonze et al., 2023) and widespread insecurity in parts of the country. This scenario necessitates the need to investigate the impact of public sector investment in human capital development on sustainable development in Nigeria and provide policy recommendations for improvement. This study therefore examines the effects of public sector investment on human capital and its impact on sustainable development. In addition, this paper identifies the direction of causality between human capital investment and sustainable development in Nigeria from 1980 to 2021.

Apart from the introduction, the remainder of the paper is organized as follows: Section 2 reviews the relevant literature. Section 3 describes the data sources and the methodology employed. The empirical results and findings are discussed in section 4. Finally, Section 5 concludes the study and offers recommendations.

LITERATURE REVIEW

Conceptual review

Sustainable development refers to development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs while ensuring the protection of natural resources for the present and future generations (WCED, 1987). According to Ogunrinola and Ogunrinola (2021), it is the process of improving human well-being and social equity while reducing environmental risks and ecological scarcities and enabling economic growth and development. It refers to a dynamic process that enables all people to realize their potential and improve their quality of life in ways that protect and enhance the earth's life support systems (Olaniyi et al., 2021). All these definitions emphasize the need to balance economic growth and development with social equity and environmental protection and ensure that development is sustainable over the long term. The proponents of sustainable development recognize the importance of protecting natural resources for future generations and promoting human well-being and quality of life.

Human capital encompasses the stock of knowledge, skills, and attributes embodied in individuals that enhance productivity and contribute to the overall economic growth of a nation. (Becker, 1964; Mincer, 1984; Schultz, 1961). It includes education, training, work experience, health, and other factors that contribute to an individual's ability to produce goods and services. Blundell (2005), elaborated more on the components of human capital which were grouped into three distinct groups namely early ability, qualifications, and knowledge gained through formal education and skills and expertise gained through training on the job.

Human capital is considered an essential driver of economic growth and development because it increases productivity, innovation, and efficiency. It is also a critical determinant of income distribution and social mobility as individuals with higher levels of human capital are more likely to have higher incomes and better job opportunities. Therefore, investments in human capital development, such as education and training programs, are often seen as essential for promoting economic growth and reducing poverty.

According to Blundell (2005), human capital investment involves initial costs which the economic agent hopes to gain a return from in the future. As common with most investments, the decision is undertaken if the expected return from the investment on human capital in terms of future earnings is greater than the costs such as income given up during the period of education. Blundell identified three major beneficiaries of human capital investment namely the individual, employer, and society. The returns to society rise from the spillover effects of having an educated and well-trained population.

Before the 1960s, investment was measured in terms of physical capital while human capital was ignored. Modern literature on human capital investment as a unique type of investment was popularized by the trio of Becker (1964), Mincer (1984), and Schultz (1961) who argued that investments in education and training enhance the productive capacity of a country in the long run. By the 1980s, Romer (1986), a proponent of the endogenous growth theory argued that human capital accumulation was a key driver of sustained economic growth. His argument was based on the weakness of previous models such as the neoclassical growth theory that assumed diminishing returns to scale. Romer hypothesized that knowledge which is a product of research and development is embedded in human capital. In addition, as knowledge cannot be kept secret, it exhibits the attribute of external effects on production.

THEORETICAL FRAMEWORK

The study is founded on the endogenous growth theory proposed by Romer (1986), which emerged as a response to the limitations of the neoclassical growth model of Solow. The endogenous growth theory posits that human capital is a critical input in the production function and that endogenizing technical progress is essential for sustainable growth. The theory's principal assumptions are linked to increasing returns to scale and positive externalities, which contribute to strategic growth. Human capital, such as knowledge, training, and skills, along with technical progress, are critical motivators of economic growth in the long run. The development of research and innovation leads to the creation of progressive technologies, including non-rival goods like knowledge and technical advances. It is crucial to note that these assumptions emphasize the importance of innovation as a crucial factor in driving economic growth.

Based on the principles of the endogenous growth theory, investing in human capital development can be argued as a critical component of achieving sustainable development in Nigeria. The theory highlights the importance of human capital, such as knowledge, skills, and education, as a strategic input in the production function. By investing in human capital development, Nigeria can increase productivity, innovation, and competitiveness, leading to sustainable economic growth.

Empirical Review

Mose (2023) investigated the role of human capital formation in stimulating economic growth in the East African Community from 1980 to 2020. Using neoclassical augmented Solow growth theory and panel methodology, the study found that human capital resources significantly contributed to output growth in the region. The study highlights the importance of investing in education and training systems, improving health sector infrastructure, and creating a research-intensive agricultural economy to achieve sustainable and inclusive economic growth. The study argues that policies and strategies that promote accelerated public investment in human capital development will enhance productivity growth and foster resilient economic growth in the East African economies. These findings emphasize the crucial role of human capital in promoting economic growth and underscore the need for policymakers to prioritize human capital development as a key component of economic development strategies.

Liu, et al (2023), investigated the relationship between human capital and green growth in the context of China's

digital economy. The study aims to contribute to the existing literature by providing empirical evidence on the impact of human capital on green growth and exploring the role of various factors such as renewable energy consumption, internet use, and financial development. The Autoregressive Distributed Lag (ARDL) technique is applied to analyze the data spanning from 1991 to 2019. The findings indicate a positive long-term effect of different levels of education on China's green growth. Moreover, the regression results suggest that renewable energy consumption, internet use, and financial development significantly contribute to the expansion of green growth. These empirical findings have implications for the Chinese government's efforts in advancing green growth and promoting sustainable development.

Olowookere et al (2022), examined the impact of human capital development on Sustainable Development Goal (SDG) 1, which focuses on poverty reduction. Utilizing Nigerian data from 1981 to 2019, the study employs the Johansen Cointegration test, Granger causality test, and Fully Modified Least Squares to analyze the relationship between public investments in education and health and poverty reduction. The findings reveal that both government expenditure on health and capital formation Granger cause poverty reduction in Nigeria, highlighting the significance of investing in human capital development, particularly in the form of health expenditure, for achieving Sustainable Development Goal 1. Additionally, all components of human capital development examined in the study contribute positively to poverty reduction, with health expenditures and capital formation demonstrating statistically significant effects. This suggests that health expenditures and capital formation have a trickle-down effect on poverty reduction in Nigeria.

Diaconu and Popescu (2016), in a break from the common measures of human capital made use of three indicators of human capital namely the Human Sustainable Development Index (HSDI), Human Development Index (HDI), and Human Capital Index (HCI) to examine the relationship between sustainable development and human capital in selected European Union countries. HSDI, HDI, and HCI were used to measure environmental sustainability, human development, and effectiveness in the deployment of human capital. From the bivariate correlation analysis, findings show that for countries to obtain sustainable development, there is a need for a country to accumulate a high stock of human capital.

Bassey et al. (2022), assert that investment in education and health increases the stock of human capital. This led to investigating the impact of government expenditure on education and health on human capital development over a period of 38 years. Like Diaconu and Popescu (2016), Bassey et al (2022) used HDI to proxy human capital development. Findings from the ARDL model showed that public investment impacts human capital development positively.

METHODOLOGY

Sample and Data

The annual data used in this study cover the period from 1980-2021 for Nigeria. The variables used are adjusted net savings as a proxy for sustainable development, government expenditure on education, government expenditure on health, inflation rate, and trade openness. All the variables were sourced from the World Bank World Development Indicators.

Model Specification

To develop an empirical model for estimating the relationship between human capital development and sustainable development, this study with slight modifications drew insights from previous research conducted by Olowookere, et al (2022), Dankyi, et al (2022), Mengesha and Singh, (2023). Therefore, the model is stated as follows:

$$ANS = f(GEE, GEH, INF, TOP) \quad (1)$$

Where:

ANS = Adjusted net savings as a proxy for sustainable development

GEE = Government expenditure on education

GEH = Government expenditure on health

IFR = Inflation Rate

TOP = Trade openness

In mathematical form, the model is specified as

$$ANS_t = \beta_0 + \beta_1 GEE_t + \beta_2 GEH_t + \beta_3 IFR_t + \beta_4 TOP_t + \varepsilon_t \quad (2)$$

Where β_0 is the constant. $\beta_1 \; to \; \beta_4$ represents the coefficients of the independent variables while ε_t stands for the stochastic error term in the model. Log linearising equation 2 gives rise to model 3:

$$logANS_t = \beta_0 + \beta_1 logGEE_t + \beta_2 logGEH_t + \beta_3 logIFR_t + \beta_4 logTOP_t + \varepsilon_t. \quad (3)$$

It is expected that the apriori expectation of the model follows this pattern. $\beta_1 > 0;\ \beta_2 > 0;\ \beta_3 < 0; and\ \beta_4 > 0$

EMPIRICAL RESULTS

Descriptive Statistics

Table 1 presents the descriptive statistics of the variables used in the study. The mean adjusted net savings employed is 8.050% of GNI, with a median of 8.100%. The standard deviation is 3.197%, indicating a moderate level of variability in the data with minimum and maximum values of -1.967% and 15.600%, respectively. Government expenditure on education averaged 1.680% of GDP, with a median of 1.600% and a standard deviation is 0.405%, indicating a relatively low variability. The minimum and maximum values are 1.100% and 3.667%, respectively.

Government expenditure on health had a mean of 1.860% of GDP and a median value of 1.600%. The standard deviation was 0.644%, indicating an insignificant variability in the data. The minimum and maximum values were 1.100% and 4.067%, respectively. The mean inflation rate was 19.310%, with a median of 15.700%. The standard deviation was 21.134%, indicating a high level of variability in the data. The inflation rate ranged from -1.967% and 79.600%, respectively. Trade openness averaged 61.125% of GDP, with a median of 63.200% and a standard deviation of 21.708%. The minimum and maximum values were 10.800% and 110.200%, respectively.

Table 1: Descriptive Statistics

Indicator	Mean	Median	Standard Deviation	Minimum	Maximum
Adjusted Net Savings Employed (% of GNI)	8.050	8.100	3.197	-1.970	15.600
Government Expenditure on Education (% of GDP)	1.608	1.600	0.405	1.100	3.667
Government Expenditure on Health (% of GDP)	1.860	1.600	0.644	1.100	4.067
Inflation Rate (%)	19.310	15.700	21.134	-1.967	79.600
Trade Openness (% of GDP)	61.125	63.200	21.708	10.800	110.200

Source: Author's computation (2023).

Correlation Results

Table 2 reports the correlation coefficients among the variables. There is a weak positive correlation (r = 0.254,

$p < 0.01$) between adjusted net savings employed and government expenditure on education, suggesting that higher adjusted net savings employed are associated with increased government spending on education. A very weak and statistically insignificant positive correlation ($r = 0.165$, $p > 0.05$) is observed between adjusted net savings employed and government expenditure on health.

A moderate negative correlation ($r = -0.541$, $p < 0.01$) exists between adjusted net savings employed and the inflation rate, implying that higher levels of adjusted net savings employed are associated with lower inflation rates. In addition, a moderate positive correlation ($r = 0.420$, $p < 0.01$) is found between adjusted net savings employed and trade openness. The relationship between government expenditure on education and the inflation rate is very weak and statistically insignificant ($r = 0.140$, $p > 0.05$). There is a strong positive correlation ($r = 0.742$, $p < 0.01$) between government expenditure on education and government expenditure on health, suggesting that spending on education tends to move closely with spending on health. A very weak and insignificant negative correlation ($r = -0.043$, $p > 0.05$) is found between government expenditure on health and the inflation rate. Finally, the relationship between trade openness and the inflation rate is weak, negative, and statistically insignificant ($r = -0.136$, $p > 0.05$).

Overall, the correlation results showed that sustainable development is positively associated with spending on education and health. However, a weak and statistically insignificant relationship is found between sustainable development and government spending on health.

Table 2: Correlation results

	Adjusted Net Savings Employed	**Government Expenditure on Education**	**Government Expenditure on Health**	**Inflation Rate**	**Trade Openness**
Adjusted Net Savings Employed	1.000	0.254**	0.165	-0.541**	0.420**
Government Expenditure on Education	0.254**	1.000	0.742**	0.140	0.183
Government Expenditure on Health	0.165	0.742**	1.000	-0.043	0.139
Inflation Rate	-0.541**	0.140	-0.043	1.000	-0.136
Trade Openness	0.420**	0.183	0.139	-0.136	1.000

Source: Author's computation (2023).

Unit Root Test Results

Table 3 presents the results of the unit root tests conducted using the Phillips-Perron (PP) and augmented Dickey-Fuller (ADF) methods. The result shows that most variables namely adjusted net savings (SD), government expenditure on education (GEE), government expenditure on health (GEH), and trade openness (TOT) are not stationary at levels but become stationary after first differencing. This implies that they are integrated of order one I(1). However, for the inflation rate (IFR), the PP and ADF test statistics indicate that it is stationary at levels at the 5% significance level, implying that it is integrated of order zero, I(1). Since the variables are a mix of I(0) and I(1), the conditions for applying the Autoregressive Distributive Lag (ARDL) approach are satisfied.

Table 3. Unit Root Test Results

	Phillip Perron (PP)		**ADF**	
Variable	**Level**	**1st Diff**	**Level**	**1st Diff**
SD	-0.106	-5.988***	-0.396	-6.073***
	(0.942)	(0.000)	(0.900)	(0.000)

GEE	1.524	-5.009***	1.660	-5.011***
	(0.999)	(0.000)	(0.999)	(0.000)
GEH	-1.621	-4.630***	-2.558	-6.559***
	(0.429)	(0.000)	(0.110)	(0.000)
IFR	-3.121**	-8.919***	-3.172**	-4.199***
	(0.033)	(0.000)	(0.029)	(0.000)
TOP	0.543	-2.844	-1.485	-4.389***
	(0.987)	(0.061)	(0.529)	(0.000)

Source: Author's computation (2023).

***, ** indicates significance at 1% and 5% levels, respectively.

Cointegration Test Results

The long-run relationship between sustainable development and investment in human capital is investigated using the Bound test. The result is presented in Table 4. The findings show an F-statistics value of 8.28 at K = 4, which exceeds the critical values at the 10%, 5%, 2.5%, and 1% significance levels for both the lower bound I(0) and the upper bound I(1). These results imply that a long-run relationship exists among the variables. Given the confirmation of a long-run relationship among the variables, the ARDL model was used to estimate the short-run and long-run dynamics between human capital investment and sustainable development in Nigeria.

Table 4: Bound Test Results

Significance level	**I(0) bound**	**I(1) bound**	**F-Statistics**
10%	2.45	3.52	8.28
5%	2.86	4.01	
2.50%	3.25	4.49	
1%	3.74	5.06	

Source: Author's computation (2023).

ARDL Short-Run Effects

Table 5 presents the short-run estimates of the effects of public expenditure in human capital on sustainable development in Nigeria. The results show that government expenditure on education (GEE) exerts a positive and statistically significant impact on sustainable development. Specifically, holding all other factors constant, a 1% increase in government spending on education leads to approximately 0.814% rise in sustainable development in the short term. This result suggests that investment in education immediately contributes to building human capital, enhancing skills and productivity, and creating a foundation for sustainable economic development in the country.

Similarly, government expenditure on health (GEH) exhibits a positive effect on sustainable development in the short run. Holding other factors constant, a 1% increase in public spending on healthcare is associated with a 0.342% increase in sustainable development.

The inflation rate shows an inverse relationship with sustainable development, although the effect is statistically insignificant. A 1%-point increase in the inflation rate reduces sustainable development by 0.015%. This suggests that inflation has a weak and negligible influence on sustainable development in Nigeria.

On the other hand, trade openness has a positive and statistically significant effect on sustainable development. The coefficient of the error correction term (ECM(-1)) was negative and statistically significant and showed that about 57.4% of any short-run deviation from the sustainable development path was corrected for within one year.

Table 5: Short-Run Result				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
Δ(GEE)	0.814***	0.202	4.029	0.000
Δ (GEH)	0.342**	0.148	2.311	0.026
Δ (IFR)	-0.015	0.042	-0.357	0.722
Δ (TOP)	0.229**	0.088	2.602	0.013
ECM (-1)	-0.574***	0.092	-6.239	0.000
C	0.123	0.218	0.564	0.574

Source: Author's computation (2023).

*** and ** denotes significance at 1% and 5% levels, respectively

Long Run Effects

The long-run effects of public sector investment on sustainable development in Nigeria are presented in Table 6. The results indicated that government expenditure on education (GEE) had a positive and statistically significant impact on sustainable development, proxied by adjusted net savings. The positive coefficient of 1.628 suggested that a 1% increase in government spending on education would lead to a 1.628% increase in sustainable development, holding all other factors constant. This finding underscored the critical role of government expenditure on education in fostering sustainable development, which was consistent with the findings of Coman et al. (2023) and Raza et al. (2023).

Similarly, government expenditure on health (GEH) also exerted a positive and statistically significant effect on sustainable development. The coefficient of 0.690 indicated a 1% increase in government spending on health was associated with a 0.690% increase in sustainable development in line with the theoretical expectations. The findings supported previous findings by Osundina and Oyelade (2020) and Adebowale et al. (2021).

Regarding the inflation rate, the estimated coefficient was negative (-0.023) indicating an inverse relationship between the inflation rate and sustainable development which aligned with theoretical expectations. However, the relationship is statistically insignificant suggesting that the inflation rate was not a major determinant of sustainable development in Nigeria. Similar conclusions were drawn by Arora and Sarker (2023), Akpan and Isihak (2020), and Chukwu et al. (2020).

Finally, the coefficient of trade openness (TOP) result was positive and statistically significant. A 1% increase in trade openness was associated with a 0.444% increase in sustainable development, supporting the a priori expectation that trade fosters sustainable growth.

Table 6: ARDL Long run effects results				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
GEE	1.628	0.195	8.314	0.000
GEH	0.690	0.225	3.062	0.004
IFR	-0.023	0.058	-0.396	0.694

TOP	0.444	0.123	3.602	0.000
C	0.235	0.291	0.807	0.424

Source: Author's computation (2023).

Granger Causality Test Result

An additional objective of this study was to examine the direction of causality between sustainable development and human capital in Nigeria. To achieve this, the Granger causality test was employed, and the results are presented in Table 7. The result revealed a unidirectional causality running from sustainable development to government expenditure on education with no evidence of feedback in the reverse direction. This suggests that improvements in sustainable development stimulate increased government spending on education but not vice versa. Conversely, a bidirectional causality was observed between sustainable development and government expenditure on health showing that sustainable development and government health spending mutually influenced each other.

Table 7: Granger causality test result

Null Hypothesis:	Observations	F-Statistic	Prob.	Decision
GEE does not Granger Cause SD	40	1.850	0.172	Accept H_0
SD does not Granger Cause GEE		5.031	0.012	Reject H_0
GEH does not Granger Cause SD	40	12.937	6.00E-05	Reject H_0
SD does not Granger Cause GEH		5.253	0.010	Reject H_0

Source: Author's computation 2023

CONCLUSION AND RECOMMENDATIONS

This paper investigated the impact of human capital development on sustainable development in Nigeria from 1980 to 2021. Using ARDL estimation and Granger causality techniques, this paper aimed to investigate the relationship between human capital investment by government, trade openness, inflation, and sustainable development in Nigeria. The results suggested that investment in health and education had a positive impact on sustainable development, with a unidirectional causality running from sustainable development to educational expenditure. Moreover, bidirectional causality was found between sustainable development and government expenditure on health. Additionally, trade openness had a positive effect on sustainable development, while inflation had a negative effect.

Based on these findings, this paper recommends that the Nigerian government prioritize investment in education and healthcare services to promote sustainable development. Moreover, the government should encourage trade liberalization to promote economic growth and sustainable development while implementing policies to control inflation to ensure economic stability. Overall, the findings of this study provide intuition into the role of human capital in promoting sustainable development in Nigeria and highlight the need for continued investment in education, health, and other critical areas to achieve sustainable development goals.

REFERENCES

1. Adebowale, A. S., Uthman, O. A., Wiysonge, C. S., & Bishwajit, G. (2021). Public health expenditure and sustainable development in low- and middle-income countries: A cross-sectional study. International Journal of Health Policy and Management, 10(1), 1-12
2. Akpan, E. O., & Isihak, S. R. (2020). Inflation and sustainable development in Nigeria: An empirical analysis. Journal of Sustainable Development, 13(1), 1-12
3. Arora, R. U., & Sarker, T. (2023). Financing for sustainable development goals (SDGs) in the era of COVID-19 and beyond. The European Journal of Development Research, 35(1), 1-19.
4. Balana, B. B., & Oyeyemi, M. A. (2022). Agricultural credit constraints in smallholder farming in

developing countries: Evidence from Nigeria. World Development Sustainability, 1, 100012.
5. Bassey, E.B., Ekong, U.M., & Epenyong, B.E. (2022). Government expenditure and human capital development in Nigeria. Royal Journal of Social Sciences Research 1(1), 1-21.
6. Becker, G.S. (1964). Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education. University of Chicago Press, Chicago.
7. Blundell, R., Dearden, L., Meghir, C., & Sianesi, B. (2005). Human Capital Investment: The Returns from Education and Training to the Individual, the Firm and the Economy. Fiscal Studies, 20(1), 1–23.
8. Chukwu, J. O., Okafor, R. G., & Chukwu, K. O. (2020). Inflation and sustainable development in Nigeria: A causality analysis. Journal of Economic and Sustainable Development, 11(4), 25-34.
9. Coman, A. C., Lupu, D., & Nuţă, F. M. (2023). The impact of public education spending on economic growth in Central and Eastern Europe. An ARDL approach with structural break. Economic Research-Ekonomska Istraživanja, 36(1), 1261-1278.
10. Dankyi, A. B., Abban, O. J., Yusheng, K., & Coulibaly, T. P. (2022). Human capital, foreign direct investment, and economic growth: Evidence from ECOWAS in a decomposed income level panel. Environmental Challenges, 9, 100602.
11. Diaconu, L., & Popescu, C. (2016). Human capital – a pillar of sustainable development. Empirical evidence from the EU states. European Journal of Sustainable Development, 5(3), 103-112.
12. Ilonze, U., Uzonwanne, M., Nwokoye, E., & Eze, E. (2023). Impact of government expenditure on capital development in Nigeria. Journal of Economic Studies, 20(1), 153-171.
13. Mengesha, Z. D., & Singh, L. (2023). Human capital accumulation and economic growth of Ethiopian economy. African Journal of Science, Technology, Innovation and Development, 15(2), 211-226.
14. Mincer, J. (1984). Human capital and economic growth. Economics of Education Review, 3(3), 195–205.
15. Mose, N. (2023). The Link Between Human Capital Formation and Economic Growth in East Africa. Asian Journal of Economics, Business and Accounting, 23(7), 49–55.
16. Ofosuhene, D. (2022). Distance Education and Human Resource Development: An Empirical Review. European Journal of Humanities and Social Sciences, 2(1), 9-16.
17. Ogunrinola, J. B., & Ogunrinola, A. E. (2021). Human Capital Development and Economic Growth in Nigeria: An ARDL Approach. Sustainable Development, 29(1), 166-176.
18. Olaniyi, O. E., Olawale, O. D., & Akinola, A. E. (2021). Insecurity and Sustainable Development in Nigeria: The Imperative of Social Protection. In O. D. Olawale, A. E. Akinola, & O. E. Olaniyi (Eds.), Insecurity in Nigeria: Impact, Causes and Solutions (97-120).
19. Olopade, B. C., Matthew, O., & Eseyin, O. (2023). Public Expenditure and Human Capital Development in Nigeria. UMYU Journal of Accounting and Finance Research, 5(1), 1-11.
20. Olowookere, J. K., Olanipekun, W. D., Sokunbi, G. M., & Aderemi, T. A. (2022). Human Capital Development and Sustainable Development: Evidence from Nigeria. Studia Universitatis Babes-Bolyai Oeconomica, 67(1), 63-76.
21. Osundina, F. T., & Oyelade, O. J. (2020). Government health expenditure and maternal and child health outcomes in Nigeria: A longitudinal analysis. Journal of Public Health Management and Practice, 26(1), E1-E7.
22. Liu, D., Wang, G., Sun, C., Majeed, M. T., & Andlib, Z. (2023). An analysis of the effects of human capital on green growth: effects and transmission channels. Environmental Science and Pollution Research, 30(4), 10149-10156.
23. Raza, H., Ali, A., Rafiq, N., Xing, L., Asif, T., & Jing, C. (2023). Comparison of Higher Education in Pakistan and China: A Sustainable Development in Student's Perspective. Sustainability, 15(5), 4327.
24. Romer, P. M. (1986). Increasing returns and long-run growth. Journal of Political Economy, 94(5), 1002-1037.
25. Schultz, T. (1961). Investment in human capital. The American Economic Review, 51(1), 1-17.
26. UNICEF. (2021). Out-of-school children in Nigeria. Retrieved from https://www.unicef.org/nigeria/education-0
27. United Nations Development Programme (UNDP). (2022). Human development report 2021–22: Uncertain times, unsettled lives—Shaping our future in a transforming world. United Nations Development Programme.
28. World Commission on Environment and Development (WCED). (1987). Our Common Future. Oxford University Press.