PUBLIC EXPENDITURE AND HUMAN DEVELOPMENT INDEX IN NIGERIA

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Abstract: This study determined the effect of government expenditure on human capital index, using government spending on education and health care as the independent variables spanning from 1999 to 2023. The descriptive statistics was used to analyze the data, and multiple regression analysis was employed to test the hypotheses. From the results, the study found that government spending on education has a significant effect on human capital index in Nigeria, while the government spending on health has no significant effect on human capital index in Nigeria. The F-statistic of the regression is equal to 193.730 and the associated F-statistical probability is equal to 0.00000, implies that government spending has statistically significant effect on human capital index in Nigeria. Based on the results, the study recommended among others that government of Nigeria needs to readdress resources to productive sectors that directly contribute to human capital, such as infrastructure education or healthcare and implement reforms to restructure government processes and reduce bureaucratic overhead.

Keywords: Government spending, Education, Health care and Human capital index

Introduction

Public spending policies aim for steady and fair economic growth. Rapid economic growth is crucial for developing countries like Nigeria to achieve sustainable development, and the government takes an expanded and substantial role in promoting this growth. The challenge of raising living standards for a growing population becomes much more pressing in emerging nations without this kind of growth (Odo, Eze & Onyeisi, 2016). Enhancements to healthcare, education, and infrastructure, as well as efforts to attract investment from inside and beyond the country, are the usual culprits for economic expansion (Saad & Kalakech, 2015).

Over time, public spending has played a crucial role in influencing both human and physical capital. When factors like a lack of infrastructure or trained workers prevent a country's economy from

reaching its full potential, strategic public expenditure can help alleviate these problems and spur development, although temporarily. Investing heavily in human capital is essential for achieving considerable economic growth (Adebayo & Babajide, 2024). The "Asian Tigers" (Taiwan and Singapore) are a good example of a country that has seen fast economic growth thanks to its strong investment in human capital (Jaiyeoba, 2021). Spending on human capital is essential for a country's economic progress in today's knowledge- and skill-based global economy (Uduh & Azu, 2017).

The conspicuous pursuance of human capital development is no longer confined to the agendas of developing countries struggling to overcome the legacies of economic history, including the consequences of arbitrarily imposed dependence on traditional natural resources as a precursor to sustainable development. It is now a challenge for the growing cosmopolitanism of developed countries (Agu, Inyiama & Ubesie, 2024). In a rather candid approach, international commitment has reinforced the roles of human capital development in form of the Human Capital Project, which is a methodological framework, designed to strengthen and accelerate effective policies and strategy towards expanding human capital investment (World Bank, 2018). As noted in the World Development Report (WDR) (2019) titled "The Changing Nature of Work", the frontier for skills is moving rapidly, bringing both opportunities and risks. Mounting evidence abound signaling that without strengthening human capital, countries cannot sustain economic growth, will not have a workforce prepared for the more highly skilled jobs of the future, and will not compete effectively in the global economy. The cost of inaction on human capital development is increasing in the "Knowledge economy" which is the new normal.

Human capital developments especially for developing countries are spearheaded by the government. This consolidates the need to investigate how expenditures of the government are channeled towards this. Health expenditure, public (percent of government expenditure) in Nigeria was reported at 131 percent in 2014 while the government expenditure in tertiary institutions counterpart as percent of GDP (percent) in Nigeria was reported at 0.50335 percent in 2003 (World Bank, 2020). The percentage of government allocation to education steadily declined from 7.14 percent in 2018 to 7.11 percent in 2019 and 6.48 percent in 2020 while aggregate expenditure on health was less than five percent (BudgiT, 2020). This is a far cry from the UNESCO recommended minimum benchmark which is 26% budgetary allocation to education while WHO recommended at least 15% allocation to health. So long as investment in human development remains scars, sustainable economic development will remain illusionary in Nigeria.

People are the most promising and valuable resource for increasing productivity and the economy, at least in theory. Invented by humans, tools and technology are useless unless people actually utilize

them. So, originality and imagination are the keys to a fruitful endeavor. In recent theories of economic growth, human capital spending has been given a lot of attention (Romer, 1986; Lucas, 1988). Their research demonstrates that, even after controlling for all inputs, economic production per unit of input may increase with time. Contributing significantly to this ongoing expansion are advances in human capital and an ever-expanding body of knowledge. The growth of people as assets in their own right, both creatively and productively, is central to Lucas's notion of human capital investment (Harbison, 1962). Individuals' capacities to create economic value are enhanced by their human capital, which includes their knowledge, traits, skills, and creativity (Adelakun & Joseph, 2021).

Supporting human capital development, investments in healthcare and education are crucial. Economic growth is driven by education, which enhances total production and makes individuals more adept. It also encourages new information, innovations, and skills (Adebayo & Babajide, 2024). Investment in education pays dividends in the form of increased money, new technologies, and improved living standards. Contrarily, health supports overall wellness, which in turn leads to a competent workforce and, by the acquisition of new skills and knowledge, advances human capital development. Oluwakemi (2018) asserts that public expenditure on healthcare, schools, social services, farms, and research greatly quickens the growth of human capital in Nigeria, and that more public spending only makes this acceleration stronger.

Prior studies has been such as, Agu, Inyiama and Ubesie (2024) examined the effect of government expenditure on human capital index in Nigeria, using Government expenditure on administration, economic services, and social community services were the independent variables of the study 2001 and 2021. Ijoko (2023) analyzed the Impact of Public Expenditure on Health Services Delivery in the Federal Capital Territory (FCT). Yahya, Okwonkwo & Bassey (2023) looked at how public spending on education, human capital development, and GDP growth were related in Nigeria from 1981 to 2020. Onazi (2022) evaluated the effect of government expenditure on health and education on human capital development in Nigeria from 1986 to 2018. There is a limited study on the effect of government expenditure on education and health on human capital index in Nigeria up to 2023. This study therefore sought to determine the effect of government expenditure on human capital index. The specific objectives are to:

1. Ascertain the effect of government spending on education on human capital index.
2. Determine the effect of government spending on health care on human capital index.

Literature Review
Government spending

Government expenditures are the costs that are usually sustained by the government for the provision and maintenance of itself as an institution, the economy and society. Government expenditures usually tend to increase with time as the economy becomes large and more developed or as a result of increase in its scope of activities. Ogboru (2010) recognized recurrent and capital budget as one of the major types of budgets in an economy. It is sometimes referred to as revenue budget and it covers recurrent items or expenditure. The capital budget has to do with expenditures necessary to procure capital assets. Taiwo (2012) reported that government's spending is a fiscal instrument which serves a useful role in the process of controlling inflation, unemployment, depression, balance of payment equilibrium and foreign exchange rate stability. In the period of depression and unemployment, government spending causes aggregate demand to rise and manufacture and supply of goods and services follow the same direction. Internationally, government expenditure has been a source of interest to both scholars and macroeconomic policymakers due to its effects on the level of growth in an economy.

The Nigerian public expenditure structure can be segmented into recurrent expenditure and capital expenditure. The components of the recurrent expenditure include expenditure on administration. (Interest on loans and maintenance, salaries and wages) while capital expenditure captures government projects on the generation of the electricity, education, telecommunication, airports, roads, and so on (Andinyanga & Anietie, 2023). The provision of public infrastructural facilities has been one of the fundamental bases for public spending. Providing and maintaining these infrastructural amenities cost a huge amount financing. Hence, investment on infrastructures and productive activities spending is expected to positively contribute to the growth of the economy whereas spending on consumption by the government retard growth (Fasewa & Aderinto, 2023).

Odior (2011) reported that government capital expenditures are funds used to develop buildings, machinery, equipment, educational and healthcare facilities, etc. Additionally, it covers the costs incurred by the government to make investments that will yield dividends in the future and to acquire fixed assets. Spending on development or investment has benefits that last for years in the future, and these expenditures are referred to as capital spending (Okang et'al 2020). Purchasing fixed and intangible assets, improving an existing asset, fixing an existing asset, and loan repayment are all considered capital expenditures. Repaying a debt is a capital expenditure because it reduces obligation in addition to creating assets. The long-term character of capital investment, which results in the formation of assets, enables the economy to generate income for many years by expanding or upgrading manufacturing facilities and increasing operational effectiveness. Additionally, it raises labor force participation, assesses the state of the economy, and increases the economy's potential for

future growth. Government spending continues to be a crucial tool in the development process. At all stages of growth and development, it is crucial to the operation of any economy. Today, the majority of industrialized and emerging nations employ public spending to alter the composition of national income, improve income distribution, and steer resource allocation in desirable directions (Vtyurina, 2020; World Bank, 2008).In various emerging nations, the variety in government spending patterns is anticipated to not only ensure stabilization but also to spur economic growth and increase employment possibilities (World Bank, 2015).

Spending on Education

The literature on economic growth focuses heavily on education because of its long-standing reputation as a crucial investment in human capital. Some have suggested that schooling can affect development in several ways. For instance, Hanushek and Woessmann (2008) documented that education has many positive effects on a nation, including improving the efficiency of its workforce, decreasing inequality, improving health, decreasing fertility rates, fostering good governance, and increasing a nation's potential for knowledge and creativity. Investing heavily in education is a smart move since it builds human capital.

Even though students in Nigeria pay exorbitant tuition, especially at the university level, some claim that the government's education budget has never been enough. For example, state expenditure on education, which accounted for 18.2% of total government expenditure in 1962 and 3.6% of GDP in 1962, had dropped to 14.2% of total government expenditure in 1998 from 18.2% of GDP in 1962 (Hinchliffe, 2002). Even though the national budget increased significantly from 2010 to 2014, education budget allocations decreased even more from 2015 to 2018, falling to 7.05% (Ndujihe, 2018). According to the EFA worldwide monitoring report for 2000-2015 (Adedigba, 2017), education should get 15-20% of a country's budget, however in 2018, Nigeria's largest national budget of N8.612 trillion only allotted N605.8 billion, or roughly 7.03%, to the sector.

Expenditure on education by the public sector, including both private and public schools, is an important measure of a nation's commitment to human capital development (World Bank, 2018). Capital expenditures include investments in instructional technology, infrastructure, and building expansion, whereas recurrent expenses include things like teacher salaries and facility maintenance. When a government prioritizes investing in its citizens' education, it shows that it values human capital development. The importance of education as a catalyst for societal prosperity, technological advancement, and economic growth is emphasized. Investing more in public schools shows that we value education and want to make sure everyone has access to a good one, which helps build a better workforce (Hanushek & Woessmann, 2012).

Spending on public schools in Nigeria provides important insight into the government's strategy for human capital development. Allotments to educational institutions and projects constitute a substantial portion of this expenditure. To better understand Nigeria's initiatives to cultivate a competent labor force, it is instructive to examine the patterns in the country's public education expenditure during the past several years. Nigeria has been facing budgetary challenges as of late, making it difficult to meet the demand for high-quality education. Funding for public schools has changed throughout time, influenced by budget cuts and other government priorities as it tries to meet the sector's most pressing demands (World Bank, 2022).

Spending on Health

Government budgets, foreign loans and grants, money from required health insurance systems, contributions from worldwide organizations and NGOs, and both ongoing and one-time capital expenditures make up public health expenditure (WHO, 2010). Economic expansion has often been sparked by notable strides in public health, illness management, and better nutrition. The National Planning Commission of Nigeria outlined their goals for health reform in the National Economic Empowerment and Development Strategy (NEEDS) (NPC, 2004). In order to attain poverty reduction levels that are considered acceptable globally, this health reform aims to enhance the health status of Nigerians.

Aranda (2010) reported that investments in health affect health status, and the anticipation of enhanced health outcomes is the main motive for health spending. Spending on healthcare and better health conditions are means to an end of increased productivity and national economic growth, which in turn is driven by the demand for health. In a similar vein, Berger and Messer (2002) outlined how increasing public investment in healthcare infrastructure is a critical strategy for governments to enhance their healthcare delivery systems.

Numerous demographic and non-demographic variables impact healthcare expenditures, as shown by Clement et al. (2011). Changing demographics include changes in the distribution of ages, but non-demographic influences include things like increasing incomes, new health technologies, health policies, and institutional frameworks. Behavioral, structural, and psychosomatic factors were highlighted by Denton et al. (2004) in a relevant research. Age, familial traits, occupation, level of education, income, and social networks are all structural variables.

Public health spending in Nigeria is a reflection of the government's desire to foster a healthy and productive populace, which in turn reflects its dedication to human capital development. Healthcare access and quality are directly influenced by government investment, which in turn affects the health and well-being of the workforce (World Bank, 2023). Spending on public health includes things like

healthcare facilities, employee education, illness prevention, and disaster relief, all of which help build human capital.

Human Capital Spending

A large portion of Nigeria's socioeconomic structure is determined by investments in human capital. Key to national success, it is defined as investments in healthcare, education, and workforce development (World Bank, 2019). It is crucial to evaluate the trends, obstacles, and possible policy actions related to human capital because of its indisputable significance in fostering economic growth and resilience.

Nigeria has a big and young population, but new statistics reveal that the country isn't making the most of its human resource. Poor worker productivity is caused by shortcomings in healthcare and education systems (UNESCO, 2021). To further harness the demographic dividend and propel sustainable growth, high rates of unemployment and underemployment call attention to the necessity for smart investments in human capital (NBS, 2022).

Over the years, the government of Nigeria has poured a lot of money into the country's educational system. Nevertheless, challenges such as inadequate facilities, a lack of qualified educators, and subpar educational outcomes persist in the field (World Bank, 2020). In order to address these difficulties and improve the overall quality and relevance of education in Nigeria, it is necessary to invest in teacher training, enrich the curriculum, and integrate educational technology.

The availability, cost, and quality of healthcare in Nigeria are all problems. Improving health outcomes nationwide and resolving these issues would need increased healthcare spending on human capital (WHO, 2021). A holistic approach to enhancing the nation's human capital should prioritize investments in healthcare infrastructure, professional training, and preventative healthcare initiative

Government initiatives to improve human capital development must be complemented by the private sector. Increased funding and specialized knowledge may be brought to bear on healthcare and education projects through public-private partnerships (PPPs) (ILO, 2022). In addition, entrepreneurial initiatives and other forms of innovative skill training can help create a more flexible and dynamic workforce.

Policymakers in Nigeria would do well to use a multi-pronged strategy in light of the present difficulties. Some examples of this include bolstering public-private partnerships, allocating more funds to healthcare and education, and enacting specific reforms to fix systemic flaws (World Bank, 2021). The efficient use of monies and the conversion of investments in human capital into observable advancements in national development can only be achieved with strong monitoring and evaluation mechanisms.

The future of Nigeria's economy is highly dependent on the country's investment in its human capital. Nigeria can maximize its human capital potential and set the stage for long-term economic growth and social advancement by investing in healthcare, education, and workforce development via strategic policy changes and investments. Human capital is the sum of a country's workforce's expertise, experience, and education. A definition provided by the Oxford Learner's Dictionary is "the skills, knowledge, and experience of individuals or groups, seen as valuable resources that an organization or country can utilize." All employees, both existing and prospective, are considered part of human resources (Yetunde & Aluko, 2012). The fundamental duty of any government is to cultivate and enhance the abilities and untapped potential of its inhabitants so that they can contribute significantly to the expansion of the nation. Investments in people's education, training, and other professional endeavors to better their understanding, competence, character, and capacity to interact with others are all part of human capital. A nation's human capital includes everything that boosts production, encourages ingenuity, raises human dignity, and improves the general quality of life (Yetunde & Aluko, 2012).

Empirical Studies

Agu, Inyiama and Ubesie (2024) determined the effect of government expenditure on human capital index in Nigeria from 2001 to 2021. Ex-post-facto research design was adopted. The study employed multiple regression analysis for the data analysis. It was reported that Government expenditure on administration has a significant negative effect on human development index in Nigeria; Government expenditure on economic services has a non-significant positive effect on human development index of Nigeria and Government expenditure on social community services has a significant positive effect on human development index of Nigeria. Jolaiya (2024) evaluated the effect of government expenditure on economic growth in Nigeria. Data was collected from the CBN statistical bulletin. The study employed multiple regression analysis to ascertain the causal association among the variables. The study reported that government expenditure on health was found to have a negative impact on economic growth. Government expenditure on environment was found to have a negative impact on economic growth. Furthermore, government expenditures on education were found to have a positive impact on economic development. Government expenditures on agriculture were found to have a positive impact on economic development. Ujam, Onuorah and Okolie (2024) ascertained the effect of federal government capital expenditures on economic health of Nigeria from 1981-2023. *Ex-post facto* and experimental research design. The study covered based on the convenient and systematic sampling techniques. Data were collected from CBN statistical bulletin from 1981 to 2023. Ordinary Least Square Regression Model was employed to test hypotheses. The found that administration

expenditure has negative and significant effect on the real gross domestic product (RGDP) of (P<.5), social and community services expenditure has a positive but insignificant effect on the real gross domestic product (RGDP) of (P>.5), while transfer expenditure shows positive and significant effects on real gross domestic product (RGDP) of (P<.5). Fasewa and Aderinto (2023) ascertained the effect of government expenditure on inflation in Nigeria while disaggregating expenditure into capital and recurrent. Secondary data collected from the Central Bank of Nigeria Statistical Bulletin was employed for a period of thirty-eight years (i.e. 1981-2019). The Auto Regressive Distributed Lag technique was employed. For the first model explaining government capital expenditure, short run estimates reveal that in the current period, government capital expenditure has a significantly negative relationship with inflation. Andinyanga and Anietie (2023) ascertained the effect of government consumptions on performance of annual capital expenditure in Nigeria over a period of forty-one years (1981-2021). This study seeks to investigate the effect of government consumptions on performance of annual capital expenditure in Nigeria. Ex-post facto research design was used and descriptive statistic and ordinary least square regression techniques to analyze the data. The data collected were analyzed using Johansen Cointegration test and vector error correction model (VECM). The findings revealed that besides administrative consumption, other explanatory variables economic service consumption, social and community services consumption, and transfers' consumption had positive and significant effect on the performance of annual capital expenditure. Yahya et al. (2023) studied how public spending on education, human capital development, and GDP growth were related in Nigeria from 1981 to 2020. Key drivers of revolutionary and productive economic growth were identified in the study as education and health. Using EViews9, post-estimation econometric approaches were applied to the data. Public education spending, human capital development and economic growth in Nigeria are all positively correlated. Asiagwu et al. (2023) studied the correlation between government spending and GDP growth in Nigeria. Research for the project was based on statistics published in the CBN Statistical Bulletin from 1981 to 2021. Descriptive statistics, Granger causality tests, Augmented Dickey-Fuller (ADF) unit root tests, and Ordinary Least Squares (OLS) regression were among the analytical methods utilized. A number of capital and recurring expenditures from diverse sectors (administration, economic services, social and community services, and transfers) served as independent variables in the model, with Real Gross Domestic Product (RGDP) serving as the dependent variable. There was a significant link between the variables, as shown by the statistically significant from the regression analysis. An R-squared score of 0.933599 indicated that the independent factors explained 93.36% of the variation in the dependent variable. Euphemia (2022) determined the effect between human capital development and economic growth in

Nigeria. The time series data was sourced from Central Bank of Nigeria Statistical Bulletin and World Bank data base from 1981 to 2020. Using the Autoregressive Distributed Lag (ARDL) framework; the bounds testing analysis indicated the existence of co-integration between economic growth and human capital development indicators. The study found that total government expenditure on education having positive and insignificant long-run relationship with GDP. Also, total government expenditure on health and gross capital formation was found having positive insignificant long-run relationship with GDP. Nwankwo, Nwakoby, Anyanwu and Ananwude (2022) examined effect of federal government expenditure on economic growth in Nigeria from 1986 to 2020. The citizens have seen leadership in Nigeria as a failed litmus test; some have left the country to seek for "greener pastures" abroad. Auto-Regressive Distributive Lag (ARDL) model was employed to test the hypotheses. The study showed that government recurrent expenditure has significant effect on real gross domestic product, gross fixed capital formation, and savings. Government recurrent expenditure is negatively related with real gross domestic product, gross fixed capital formation, savings, and manufacturing capacity utilization. Onazi (2022) evaluated the effect of government expenditure on health and education on human capital development in Nigeria. Vector Autoregressive (VAR) model, impulse response function was used to analyze the effect of government expenditure on health and education on human capital development in Nigeria using time series data from 1986 to 2018. The result revealed that government expenditure on education and health affected human capital development positively given its indices such as school enrollment rate, life expectancy rate and Literacy rate in Nigeria. Government expenditure on education and health affected human capital development in Nigeria negatively through its index known as mortality rate. Bareke et al. (2021) analyzed the macroeconomic determinants of human capital development in Ethiopia using the Autoregressive Distributed Log (ARDL) model. Time series data from 1981 to 2018 was considered for the study. The empirical result of the study revealed that GDP per capita, openness, and education policy variables were found to have a positive and significant effect on human capital development in the short and long run. However, inflation has a negative effect on human capital development only in the short run. Chinwedu et al. (2021) used data from the Nigerian Bureau of Statistics and the CBN to look at how investments in human capital affected GDP growth and development from 1981 to 2018. This study added human capital investment at the household level, which was not done in earlier research. Analytical methods such the Vector Error Correction Mechanism, Johansen cointegration, Augmented Dickey-Fuller, and Phillips-Perron were used. Public investment in health did not significantly affect economic development, household investment in education had a negative effect on development, and household investment in health had a positive impact on development. Among

these, the study found that public investment in education had a positive short-term impact but no long-term effect on development. Sankay, Ismail and Shaari (2020) evaluated the relationship between human capital development and economic growth in Nigeria from 1970 to 2018. The study used Johansen cointegration approach and vector error correction analysis, Measures of human capital development proxied by key macroeconomic indicators such as real gross domestic product (RGDP), real capital expenditure (RCE), and recurrent expenditure (RRE) on education; real capital stock (RCS), school enrollment (SCHE), and labor force (LF) were also included. Human capital development has a substantial effect on economic growth in Nigeria, according to the results.

Methodology

Ex-Post Facto and time series data exploration was employed as the study research design. This involves analyzing events or past information for potential counterproductive factors, *Ex-Post Facto* identifies factors related to certain conditions, or events.

This study is quantitative in nature, so it involves the collection of data from the International Monetary Fund, World Bank and OECD indicators in Nigeria. The data extracted are; government spending on education and health for independent variables and human capital index for dependent variable. The time series data covers twenty five (25) years from 1999 to 2023, while firm size represents the control variable.

Model Specification

Model specification entails identifying the dependent and independent variables that are important in a given situation. The study modified the model Adebayo and Babajide (2024) with the following mathematical formula:

HDI = F (GEXA, GEXES, GEXSCS) i

$HDI_{it} = \beta_0 + \beta_1 GEXA_{it} + \beta_2 GEXES_{it} + \beta_3 GEXSCS_{it} + c_{it} + \varepsilon_{it}$ ii

Introducing the control variables, we have:

$HDI_{it} = \beta_0 + \beta_1 GEXA_{it} + \beta_2 GEXES_{it} + \beta_3 GEXSCS_{it} + \beta_3 TDT_{it} + c_{it} + \varepsilon_{it}$ iii

Where;

HDI: Human Development Index

GEXA: Government Expenditure on Administration

GEXES: Government Expenditure on Economic Services

GEXSCS: Government Expenditure on Social Community Services

TDT: Total Debts (Control Variables)

The Model was modified as follows

ROA= f (GSE, GSH)

$$HCI_{it} = \beta_0 + \beta_1 GSE_{it} + \beta_2 GSH_{it} + \mu\text{- - --- - \quad - \quad - \quad - \quad - i}$$

Where:

HCI_{it}= Human Capital Index i in period t

GSE_{it}= Government Spending on Education i in period t

GSH_{it}= Government Spending on Healthcare i in period t

β_0 is the constant

β_1, and β_2, are the coefficient of

μ is error term

Method of Data Analysis

Descriptive statistics was employed to summarily describe the mean, median, standard deviation, kurtosis and skewness of the study variables. Inferential statistics will also be utilized with the aid of E-Views 9 using:

Multiple regressions analysis: Regression analysis envisages the value of the dependent variable based on the value of the independent variable and clarifies the effect of variations in the values of the variables.

Decision

When the p-statistic appeared at or equal to the critical level of 0.05, we accepted the alternative hypothesis and confirmed that a significant association existed. But when the P-statistic appeared above the critical level of 0.05, we accepted the null hypothesis and rejected the alternative hypothesis.

Data Analysis

Table 1: Descriptive statistics

	HCI	LOG-GSE	LOG-GSH
Mean	0.493560	2.465552	4.167811
Median	0.494000	2.549233	4.169116
Maximum	0.552000	3.470743	4.974880
Minimum	0.412000	1.304563	3.665862
Std. Dev.	0.039614	0.885581	0.306404
Skewness	-0.319191	-0.174973	0.861586
Kurtosis	2.062250	1.342330	4.163900
Jarque-Bera	4.021582	8.969790	13.51244
Probability	0.133883	0.011278	0.001164
Sum	37.01700	184.9164	312.5858
Sum Sq. Dev.	0.116124	58.03478	6.947388

Observations	75	75	75

Source: E-View output, 2025

Interpretation of Descriptive Statistics

The descriptive statistics in table 1 revealed that the human capital index (HCI) is 0.494; the maximum of 0.552 with a minimum of 0.412 and standard deviation of 0.039. The mean value of government spending on education (GSE) is 2.466; standard deviation of 0.886; a maximum value of 0.3.471 with a minimum value of 1.305. The mean value of government spending on health (GSH) is 4.168, a standard deviation of 0.0.306; maximum value of 4.975 with a minimum value of 3.666.

Skewness is the measure of how much the probability distribution of a random variable deviates from the normal distribution. Table 1 describes that the probability distribution for GSE= 0.011 and GSH= 0.001) are positive but not statistically significant at 0.05. From table 1 above, the Jarque-Bera (JB) which test for normality or the existence of outlier or extreme values among the variables shows that all the variables are normally distributed and not skewed distribution, significant at 5% level and the result could be generalized. This also implies that a least square regression can be used to calculate the regression models.

Correlation Analysis

In examining the association among the variables, we used the Pearson correlation coefficient (correlation matix) and the results are presented in table 2.

Table 2: Pearson Correlation Matrix

	HCI	LOG_GSE	LOGGSH
HCI	1		
LOG_GSE	0.91819	1	
LOGGSH	0.24998	0.25654	1

Source: E-view 9 Output (2025)

The use of correlation matrix in most regression analysis is to check for multicolinearity and to explore the association between the each explanatory variables and the dependent variable. Table 2 focused on the correlation between human capital index (HCI) as the dependent variable and our independent variables which consists of government spending on education (GSE), and government spending on health (GSE). The findings from the correlation matrix table shows that some of our explanatory variables were positively and strongly correlated with our dependent variable (GSE = 0.918 and GSH= 0.250).

In checking for multicolinearity, the study discovered that no two independent variables were perfectly correlated. This means that there is the absence of multicolearity problem in our model.

Multicolinearity between independent variables may result to wrong signs or implausible magnitudes in the estimated model coefficient, and the bias of the standard errors of the coefficients.

Testing of Hypotheses

To examine the effect between the dependent variable HCI and the independent variables (GSE and GSH), and to also test the hypotheses, the study employed a pooled multiple regression analysis. The pooled interaction based multiple regression results are presented and discussed in table 3 below.

Table 3 Regression analysis showing the relationship between GSE, GSH and HCI

Dependent Variable: HCI
Method: Panel Least Squares
Date: 04/14/25   Time: 11:03
Sample: 1999 2023
Periods included: 25
Cross-sections included: 3
Total panel (balanced) observations: 75

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.384411	0.025241	15.22946	0.0000
LOG_GSE	0.040895	0.002159	18.94066	0.0000
LOG_GSH	0.001996	0.006240	0.319896	0.7500

R-squared	0.843294	Mean dependent var	0.493560
Adjusted R-squared	0.838941	S.D. dependent var	0.039614
S.E. of regression	0.015898	Akaike info criterion	-5.406090
Sum squared resid	0.018197	Schwarz criterion	-5.313391
Log likelihood	205.7284	Hannan-Quinn criter.	-5.369076
F-statistic	193.7302	Durbin-Watson stat	0.568675
Prob(F-statistic)	0.000000		

Source: E-View 9.0

In table 3, the regression analysis was conducted to test the relationship between government spending on education, government spending on health and human capital index. Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable. From the findings in the table 3, the value of adjusted R squared was 0.84,

an indication that there was variation of 84% on human capital index due to changes in government spending on education, government spending on health. This implies that only 84% changes in human capital index of the firms could be accounted for by independent variables; GSE, and GSH, while 16% was explained by unknown variables that were not included in the model.

The Durbin-Watson Statistic of 0.569 suggests that the model contain serial correlation. The F-statistic of the regression is equal to 193.730 and the associated F-statistical probability is equal to 0.00000, implies that government spending has statistically significant effect on human capital index in Nigeria.

Hypothesis One

Ho_1: Government spending on education has no significant effect on human capital index in Nigeria.

The probability of the slope coefficients indicate that; P-value =0.000<0.05). The co-efficient value of; β_1= 0.040895; t = 18.941, implies that government spending on education is positively related to human capital index and also statistically significant at 5%.

Since the P-value of 0.000 is less than the critical value of 5% (0.05), then, it would be upheld that government spending on education has a significant effect on human capital index in Nigeria.

Hypothesis Two

Ho_1: Government spending on health has no significant effect on human capital index in Nigeria.

The probability of the slope coefficients indicate that; P-value =0.750.>0.05. The co-efficient value of; β_1= 0.001996; t = 0.320, implies that government spending on health is positively related to human capital index but not statistically significant at 5%.

Since the P-value of 0.000 is less than the critical value of 5% (0.05), then, it would be upheld that government spending on health has no significant effect on human capital index in Nigeria.

Discussion of Findings

Hypothesis one found that the P-value of 0.000 is less than the critical value of 5% (0.05), then, it would be upheld that government spending on education has a significant effect on human capital index in Nigeria. This result is in line with Yahya et al. (2023) who found that public education spending; human capital development and economic growth in Nigeria are all positively correlated, according to the data, both in the short and long term. Erasmus (2021) shows that public education expenditure had significant impact on human development index. Evidence shows that public health expenditure had positive significant impact human development index. However, Onazi (2022) disagreed and revealed that government expenditure on education affected human capital development in Nigeria negatively through its index known as mortality rate.

Hypothesis two indicates the P-value of 0.000 is less than the critical value of 5% (0.05), then, it would be upheld that government spending on health has no significant effect on human capital index in Nigeria. This finding was disagreed with Onazi (2022) showed that government expenditure on health affected negatively the human capital development in Nigeria through its index known as mortality rate.

Conclusion and Recommendations

This study determined the effect of government expenditure on human capital index, using government spending on education and health care as the independent variables. The multiple regression analysis was employed for the hypotheses. The found that government spending on education has a significant effect on human capital index in Nigeria. Another finding is that the government spending on health has no significant effect on human capital index in Nigeria. This means that the investment by government through human capital for education and health can enhance productivity. The quality of human resources connotes the state of education and health that can raise productivity when increased. Conclusively, the study found that government spending on education and health has significantly impacted on human capital in Nigeria

Based on the results, the study recommended that followings;

1. Government of Nigeria needs to readdress resources to productive sectors that directly contribute to human capital, such as infrastructure education or healthcare and implement reforms to restructure government processes and reduce bureaucratic overhead.
2. Though from the result, spending on healthcare may not provide instant human development advantages. Government agencies need to involve in a generous valuation of their existing health expenditure plans.

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