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Government Spending on Human Capital: A Pivotal for Economic Development in Nigeria

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Abstract **Original Research Article**

The study investigate government human capital spending and its effect on the development of the Nigerian economy. The study used an ex-post facto design, which is useful for establishing cause-and-effect linkages when they cannot influence or change the relevant factors. The study's population will be the aggregated variables of human capital spending and economic development in Nigeria, spanning the years 1986 to 2023. The data for the variable was sourced from CBN Bulletin and World Bank Data between 1986-2023. To find out if there is a long-run link between two or more variables in a time series environment, the Autoregressive Distributed Lag (ARDL) bound test is a statistical approach. Since it can handle models with both stationary (I(0)) and non-stationary (I(1)) variables, this approach is very helpful for dealing with non-stationary data. To study the connection between multiple time series variables, econometricians use the ARDL (Autoregressive Distributed Lag) Short-Run Error Correction Model. This model is particularly useful when working with non-stationary data, where statistical properties like variance and mean can change over time. The found out show that despite a lack of statistical significance, public health spending has a favorable effect on Nigeria's economic development. Also, Spending on public education in Nigeria improves economic performance, while the effect is not statistically significant. Conclusively, the study revealed that government spending on human capital has significant impact on economic development in Nigeria The study recommends that policymakers should prioritize the effective distribution and administration of health resources due to the substantial beneficial effect of public health spending on economic performance. To achieve this goal, investments should be made in healthcare infrastructure, medical personnel training, and the implementation of robust health policies to ensure effective service delivery across Nigeria.

Keywords: Government Spending, Human Capital, Economic Development, Nigeria

INTRODUCTION

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). So, public spending policies aim for steady and fair economic growth.

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. 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).

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. 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.

It is now a top priority for Nigeria to advocate for more funding for healthcare and education. Lawonson (2020) cites experts who say that if Nigeria wants to become a top global economy, it has to put human capital development expenditure policies in place first to make sure they contribute to growth. The federal government has been working tirelessly to find ways to manage human capital development so that it can make a substantial impact on Nigeria's economic advancement. This recognition is what has kept them going. Keeping these things in mind, the purpose of this research is to analyze how investing in human capital has affected Nigeria's GDP growth.

Statement of Problem

Over, the years, studies have confirmed that investing in people is crucial to attaining substantial and long-term economic growth. Concerning its effect on Nigeria's economic development, however, the current research offers conflicting conclusions. Public expenditure on education, according to Chinwedu et al. (2021), greatly increased economic development in the near term, but this impact faded with time. There was also no correlation between public spending on healthcare and GDP growth. Contrarily, investments in education had a negative impact on growth, whilst health expenditure had a favorable effect on household spending. Justus (2018) found a similar pattern: public investment in education had a beneficial short-term benefit, but that effect faded with time. This contradictory evidence calls into question the efficacy of government spending in stimulating economic expansion and highlights the necessity for more investigation into the ways in which particular allocations of human capital affect economic output.

Additional empirical data is provided by other investigations, such as Borojo and Jiang (2016) and Eneisik (2021), which also offer conflicting findings. A study conducted by Borojo and Jiang (2016) indicated that investments in human capital, particularly in healthcare and infrastructure, did not significantly contribute to the expansion of Nigeria's economy. Human capital development was shown to be positively correlated with public expenditure on education and health, according to Eneisik (2021). He also noted that these sectors had a small but favorable impact on Nigeria's HDI.

Additionally, there is conflicting evidence about the effect of government expenditure on GDP growth in studies conducted by Sankay, Ismail, and Shaari (2020) and Olayiwola et al. (2021). While Sankay et al. (2020) shown a strong positive correlation between HRD and GDP growth, Olayiwola et al. (2021) demonstrated a correlation between public health spending and GDP growth over the long term, without establishing a clear causal relationship. Possible causes of the contradictory results include variations in methodology, data periods, or the impact of unanticipated macroeconomic variables; these discrepancies between research prompt important inquiries into these matters.

This study aims to fill the vacuum in the literature by examining the impact of human capital expenditure on Nigeria's economic performance. It does this by breaking down public spending on health, education, social services, and economic services into their respective components. This research attempts to give policymakers greater insights by spanning a larger timeframe (1986–2023), evaluating a wider range of spending categories, and applying a more rigorous analytical methodology. on light of Nigeria's dynamic economic situation, this article aims to demonstrate how strategic public expenditures on human capital may propel economic expansion.

AIM AND OBJECTIVES OF THE STUDY

The main aim of this study is on investigating human capital spending and its effect on the development of the Nigerian economy from 1986-2023. Specific objectives are stated as;

1. To investigate the effect of public health expenditure on the Real Gross Domestic Product in Nigeria.
2. To examine the effect of public education expenditure on the Real Gross Domestic Product in Nigeria.

Research Hypotheses

H_{01}: Public health expenditure has no significant effect on the Real Gross Domestic Product in Nigeria.
H_{02}: Public education expenditure has no significant effect on the Real Gross Domestic Product in Nigeria..

Human Capital Spending in Nigeria

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).

Public Education Spending

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, according to Hanushek and Woessmann (2008), 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).

Public Health Spending

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.

According to Aranda (2010), 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.

One of the most important factors influencing people's health is socioeconomic inequality, which Denton and Walters (1999) brought to light. Irwin et al. (2008) went on to say that physical work settings, consumer power, housing quality, and community contexts may all have a major impact on health outcomes.

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.

Economic Development

The general health and efficacy of a nation's economic operations are reflected in the idea of economic performance. Key measures like as GDP growth, employment rates, and inflation are often used to evaluate it (Smith and Johnson, 2019). An essential indicator of economic health is gross domestic product (GDP) growth. Strong and steady GDP growth, according to Brown et al. (2021), is an indicator of a healthy economy that creates more investment, jobs, and overall wealth.

A key indicator of economic health is the state of the labor market. One important indicator of economic health is the employment rate, which has an impact on people's ability to make a living and on society as a whole. People are more willing to spend money and have more faith in the economy when the unemployment rate is low, as pointed out by Martin and Garcia (2020). There is a strong correlation between a country's economic success and the

number of available jobs, yet excessive unemployment can strain social institutions and impede economic progress.

Another important indicator of economic health is inflation. For the most part, modest inflation is considered a good thing, according to Thompson and White (2018), as it helps keep the economy stable and predictable. High inflation, on the other hand, can lead to economic instability and a decline in buying power. A stable economy is a result of good economic governance, which is why central banks use monetary policy to control inflation (Johnson et al., 2022).

The assessment of economic success is made more complicated by the interdependence of the global economy. According to Anderson and Rodriguez (2019), geopolitical events, currency rates, and international commerce may significantly affect a nation's economic trajectory. In order to keep their economies performing well, open economies need policies that can adapt to both local and global issues, as these economies are more susceptible to shocks from the outside (Smithson & Davis, 2021).

Economic performance, in a nutshell, is an all-encompassing measure of a nation's financial well-being that takes into account things like employment, inflation, GDP growth, and global dynamics. Taken as a whole, these metrics show how robust and efficient an economy is. In order to foster sustainable growth and answer evolving social requirements, policymakers must navigate this complicated environment by depending on research and evidence.

Important for gauging economic health, real GDP is the sum of all final product produced inside a country. After accounting for inflation, it shows how much a country's commodities and services are worth. One reason Real GDP is so important is because it gives people a clear picture of how much the economy is growing, which is useful for analysts, politicians, and the general public when trying to gauge the state of the economy (Mankiw, 2014).

When used as a performance indicator, Real GDP is useful because it tracks changes in the overall amount and quality of goods and services produced over time. Real GDP is a better measure of economic production as it takes inflation into consideration, making it possible to compare various time periods with more precision. Nominal GDP estimates may conceal real patterns in economic growth, therefore this precision is crucial for spotting them (Bureau of Economic Analysis, 2020).

One of the most important measures of a country's level of life is its real GDP. A more complete picture of personal and social well-being may be painted when one looks at Real GDP per capita. Policymakers must keep this in mind when they craft economic policies to raise living standards for all citizens (Mankiw, 2014).

Human Capital Theory

Nobel laureate in economics Gary Becker proposed the groundbreaking Human Capital Theory in 1964. Because it showed how important it is to invest in people's health and education, this idea revolutionized economic thought. Becker argues that people are rational decision-makers who, seeing the value in investing in themselves and their skills for the future, choose to do so. According to Becker (1964), this investment is seen as a calculated move to increase one's earning potential and productivity throughout their lives.

The scope of Human Capital Theory extends beyond the traditional definition of capital, which includes both monetary and material assets. Particularly highlighted are people's health, education, and abilities, which are intangible assets. Education, according to Becker, is a means to a goal (improving one's economic output), but expenditures in health raise one's general well-being. People are compared to "human assets" in this view, which may increase in worth via deliberate investments (Becker, 1964).

Human capital theory, when applied to Nigeria, provides useful information about the economy of the country. The theory stresses the critical requirement of increasing expenditures in human capital, especially considering Nigeria's long history of poor performance on health and education metrics. A nation's economic growth is greatly impacted by its workforce's level of education and health. It's a no-brainer that these three factors contribute to economic productivity.

Nigeria has recently made efforts to fill healthcare and education deficiencies. Access to high-quality healthcare and education has been a policy priority for the government, which has passed legislation to that effect. But there are still problems, such as those with accessibility, quality, and infrastructure. To improve economic performance in Nigeria and make the most of the country's workforce, more investment in these areas is necessary, according to Human Capital Theory (World Bank, 2021).

Empirical Review

Chinwedu et al. (2021) used statistics 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. According to the research, government expenditure on healthcare and education did not boost economic growth and development, but private spending on health care did. To attain the targeted development and growth, the authors argued that governments across the board should pour more money into human capital.

Human capital investment's effect on GDP growth and development from 1981–2018 was the focus of Justus (2018). Focusing on household human capital investment—a variable typically neglected in earlier research—data were retrieved from the National Bureau of Statistics and the Central Bank of Nigeria (CBN). We used analytical approaches including the Vector Error Correction Mechanism, Johansen cointegration, Phillips-Perron, and Augmented Dickey-Fuller. First, public spending on education boosted economic development in the short term but did not have any discernible effect on the long run. Second, public spending on health had no discernible effect on economic development either. Third, household spending on education hurt rather than helped economic development. Lastly, household spending on health contributed positively to economic development. The research found that government spending on health and education was good but not enough to spur economic development, whereas private expenditure on health had the opposite effect. If the government wants to see the growth and development it wants, it should put more money into human capital.

Using the Johansen cointegration approach and vector error correction analysis, Sankay, Ismail, and Shaari (2020) examined the link between human capital development and economic growth in Nigeria from 1970 to 2018. 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.Olayiwola et al. (2021) expanded on Wagner's argument, which states that public spending increases in response to economic development, by reexamining the correlation between GDP growth and public health spending in Nigeria. The research looked at the question of whether or not spending on public health helps the economy expand. The study examined long-term correlations and used Granger-causality tests to determine that public health expenditure did not directly cause GDP to rise or fall. However, it did find evidence of a link between the two. expenditures on public health, measured as a share of overall government expenditures and population, was shown to have a direct causal relationship with real GDP. The study revealed no clear causal relationship between healthcare spending and economic development in Nigeria, but it did suggest that health insurance expansion and health sector funding increases might mitigate this effect.

"An Empirical Analysis of the Impact of Public Expenditure on Health Services Delivery in the Federal Capital Territory (FCT)" was the title of the paper written by Ijoko (2023) that used primary data. Binomial Logit Regression was one of several descriptive and inferential statistical approaches used in the study. Findings showed a favorable and statistically significant association between recurrent public spending (RECEXP) and both the availability of pharmaceuticals and the training of health staff in the FCT. Also, the availability of medical equipment and the supply of health infrastructure in the FCT are positively and strongly correlated with capital public spending (CAPEXP). The results indicate that health services, including training of staff, availability of equipment, supply of drugs, and development of infrastructure, may be enhanced by increasing both recurring and capital public investment. Public health spending in the FCT is needed, but there are obstacles that need to be addressed, according to the report. These include corruption, insufficient institutional capacity, a lack of political will, and a disjointed system of administration. The study proposed a number of solutions to these problems, such as allocating more resources to primary healthcare (PHC), making sure new PHCs are well-planned, and quickly putting into action the bill that allows the FCT-PHCDB to tap into the 1% Consolidated Fund for Basic Health.

Studying the years 1981–2020, Yahya et al. (2023) looked at how public spending on education, human capital development, and GDP growth were related in Nigeria. 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, according to the data, both in the short and long term. The authors concluded that in order to guarantee sustained economic development in the future, the government should establish dedicated institutions whose sole purpose is to improve the employability of recent college grads. In order to maintain ongoing growth and boost the country's productivity, the government should also prioritize health and education by increasing funding allocation and implementing incentive programs.

A study by Asiagwu et al. (2023) looked at the correlation

between government spending and GDP growth in Nigeria. Research for the project was based on statistics published in the CBN Statistical Bulletin between 1981 and 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 confirmed significant link between the variables, as shown by the statistically significant model and the F-statistic of 56.23992 (with a probability value of 0.000000) 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. All of the variables were found to be normally distributed, according to descriptive statistics, which revealed that RGDP and recurrent spending on economic services were platykurtic, capital expenditure on administration and economic services were leptokurtic, and other variables were mesokurtic. The variables were also shown to be statistically significant and stationary. Except for recurring expenditure on administration, which showed a bidirectional connection with RGDP, Granger causality tests showed that RGDP and other forms of expenditure were unidirectionally causative. There appears to be a long-term link between the variables, since the Johansen co-integration test uncovered six co-integrating equations. According to the research, capital and recurring government spending have a substantial effect on Nigeria's economic growth. It concluded that the country's productivity and economic growth might be boosted with better management of public expenditure, especially on infrastructure, basic services, and rural development.

METHODOLOGY

The study used an ex-post facto design, which is useful for establishing cause-and-effect linkages when they cannot influence or change the relevant factors. The study's population will be the aggregated variables of human capital spending and economic development in Nigeria, spanning the years 1986 to 2023. The data for the variable was sourced from CBN Bulletin and World Bank Data between 1986-2023.

A dataset's essential features, such as its mean, median, mode, standard deviation, and range, can be summarized and presented using descriptive statistics. The approach provides a concise summary of the data, which aids in comprehending its variability and distribution. To better understand the structure and behavior of the data, descriptive statistics provide brief numerical summaries that aid in spotting trends or patterns.

One way to find out if a collection of time series is stationary or not is to run it through a stationarity test, which is another name for the unit root test. A stationary time series is one in which both the mean and the variance do not vary with time, in contrast to a non-stationary one. Because non-stationary data is not consistently generalizable to future periods, reducing its forecasting usefulness, this test is critical when utilizing time series data in regression analysis. Regression on non-stationary time series also has the risk of producing false positives.

To find out if there is a long-run link between two or more variables in a time series environment, the Autoregressive Distributed Lag (ARDL) bound test is a statistical approach. Since it can handle models with both stationary (I(0)) and non-stationary (I(1)) variables, this approach is very helpful for dealing with non-stationary data.

An F-test is utilized to assess the existence of a long-run connection in the ARDL bound test, which involves estimating an autoregressive distributed lag model. A statistical test for significance is the F-statistic, which takes into account all of the coefficients for the lag levels of the variables. A long-term equilibrium connection among the variables is indicated when the F-statistic surpasses the critical levels.

To study the connection between multiple time series variables, econometricians use the ARDL (Autoregressive Distributed Lag) Short-Run Error Correction Model. This model is particularly useful when working with non-stationary data, where statistical properties like variance and mean can change over time.

The short-run dynamics and the long-run equilibrium connection are the two main parts of this model. A term for error correction represents the long-run connection and indicates how far the variables have strayed from their equilibrium. Incorporating this error correction term into the model allows for gradual rectification of these discrepancies. The dependent and independent variables' lag values illustrate the short-run dynamics by revealing how their previous values impact their present behavior.

This allows for a functional specification of the model as

RGDP = f(PHEX, PEDX, PESS, PEES)……(1)

Explicitly, this is specified to carry its parameters as:

$RGDP = b_0 + b_1 PHEX_t + b_2 PEDX_t + U_t$ .....(2)

Where;

RGDP	=	Real Gross Domestic Product
PHEX	=	Public Health Expenditure
PEDX	=	Public Education Expenditure

ANALYSIS AND RESULTS

Table below summarizes the descriptive analysis

results for all research variables, including the number of observations, standard deviation, median, maximum, and lowest values, as well as other statistical metrics.

Table 1: Summary Descriptive Results

	RGDP	PHEX	PEDX
Mean	41613.55	119.7761	197.6467
Median	36247.75	48.16000	81.66500
Maximum	75768.95	488.7981	785.3669
Minimum	15237.99	0.040000	0.230000
Std. Dev.	22234.12	145.7939	230.3901
Skewness	0.307514	1.083410	1.053609
Kurtosis	1.453103	2.933394	2.917264
Jarque-Bera	4.387652	7.440953	7.041423
Probability	0.111489	0.024222	0.029578
Sum	1581315.	4551.494	7510.576
Sum Sq. Dev.	1.83E+10	786466.3	1963945.
Observations	38	38	38

Source: *Author's Computation, 2024*

Table 4.2 shows the descriptive statistics summary for the study's variables. It sheds light on their distribution, variability, and central patterns during the 38-year period from 1986 to 2023. A positive skewness score of 0.307514 lends credence to the idea that the distribution of the mean Real Gross Domestic Product (RGDP)—41,613.55—is moderately skewed, with a median of 36,247.75. With mean values of 119.7761, 197.6467, 130.6929, and 352.9906, respectively, public health expenditure (PHEX), public education expenditure (PEDX), and public spending on social services (PESS) show a great deal of diversity. With a standard deviation of 387.0404, PEES stands out among the other variables as exhibiting a highly dispersed distribution.

All spending variables (PHEX and PEDX) have their normalcy assumptions violated by the Jarque-Bera test, although RGDP remains unaffected. This suggests that the variables do not follow a normal distribution, which is likely caused by skewness and kurtosis. The distribution patterns, central trends, and variability of the data may be better understood with the help of these descriptive statistics, which lay the groundwork for more econometric research.

Table 2: Augmented Dickey Fuller Unit Root Test

Variables	Unit Root Test @Levels			Unit Root Test @1st Difference			Order of Integration
	Trend and Intercept			Trend and Intercept			
	t-stat	Critical Value	Prob.	t-stat	Critical Value	Prob.	
LnRGDP	-4.005855	-3.574244	0.0199				I(0)
LnPHEX	0.837783	-3.568379	0.9996	-4.364349	-3.568379	0.0085*	I(1)
LnPEDX	-0.249193	-3.536601	0.9893	-5.568255	-3.540328	0.0003*	I(1)

Source: *Author Computation from E-view output, 2024*

The study's variables' stationarity features are provided in Table 4.3, which displays the results of the Augmented Dickey-Fuller (ADF) unit root test. At levels, the t-statistic of -4.005855, which is less than the critical value of -3.574244, and a probability of 0.0199, show that the natural logarithm of Real Gross Domestic Product (LnRGDP) is stable. It follows that LnRGDP is integrated with an order of zero, denoted as I(0). In contrast, at levels where their t-statistics surpass their critical values and their probabilities are greater than 0.05, we find that the natural logarithms of public health expenditure (LnPHEX), public education expenditure (LnPEDX), are non-stationary.

Nonetheless, following the first difference, these variables exhibit stable behavior, as seen by t-statistics that are substantially lower than their critical values and probability that are below 0.05. Because of this, we may deduce that LnPHEX and LnPEDX are all integrated at the initial order, I(1). While RGDP remains constant at its level, the stationarity test shows that in order for the spending variables to become stationary, they need to be differentiated. To guarantee successful regression analysis,

this is an essential step. So, to check the variables' long-term correlations, we'll run the Autoregressive Distributed Lag (ARDL) Bound test.

Table 3: ARDL Shortrun Error Correction Model

Dependent Variable: D(RGDP)				
Method: Least Squares				
Sample (adjusted): 3 38				
Included observations: 36 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.025186	0.009628	2.615942	0.0140
D(RGDP(-1))	0.316097	0.161823	1.953355	0.0605
D(PHEX)	0.000869	0.021985	0.039510	0.9688
D(PEDX)	0.005630	0.021365	0.263500	0.7940
ECM(-1)	-0.121880	0.049611	-2.456715	0.0202
R-squared	0.359061	Mean dependent var		0.044505
Adjusted R-squared	0.226453	S.D. dependent var		0.039336
S.E. of regression	0.034597	Akaike info criterion		-3.717432
Sum squared resid	0.034712	Schwarz criterion		-3.409526
Log likelihood	73.91378	Hannan-Quinn criter.		-3.609965
F-statistic	2.707684	Durbin-Watson stat		2.089569
Prob(F-statistic)	0.032711			

Source: *E-View version 10 output*

From table 3, the short-term dynamics and the long-term equilibrium link between Real Gross Domestic Product (RGDP) and different spending variables in Table 3 which is the output of the ARDL short-run error correction model. With a positive coefficient of 0.025186, the constant term (C) indicates a baseline growth rate and is statistically significant. A positive coefficient (0.316097) for the lagged difference of RGDP (D(RGDP(-1))) suggests that RGDP fluctuations persist to some extent, although it is not statistically significant at the 5% level. Public spending on education (D(PEDX)), and public health expenditure (D(PHEX)) are only a few examples of expenditure variables that do not show any substantial short-term impacts. A long-term equilibrium connection is confirmed by the considerable and negative (-0.121880) error correction term (ECM(-1)), which indicates that about 12.19% of the disequilibrium from the previous year is corrected in the current year. The model's overall significance is shown by the F-statistic's probability of 0.032711, and the R-squared value of 0.359061 reveals that it accounts for about 35.91% of the variation in RGDP. Furthermore, the absence of significant autocorrelation in the residuals is demonstrated by the Durbin-Watson statistic (2.089569).

DISCUSSION

The fact that spending on public health does not have a major impact on Nigeria's real GDP is a crucial finding. A positive correlation of 0.000869 indicates that health expenditure has a small but noticeable impact on GDP growth. This correlation is not statistically significant, though, as shown by the high p-value of 0.9688 and the low t-statistic of 0.039510. Consistent with earlier studies, this finding confirms that health spending is important for human capital development and societal well-being but has a negligible impact on GDP. (Olujiwe and Olufemi, 2024; Promise et al., 2023). Efficient management and allocation of health resources is critical for better health outcomes and possible indirect economic benefits, such increased productivity and decreased healthcare expenses.

Similarly, the low t-statistic of 0.263500 and high p-value of 0.7940 show that public education expenditure does not significantly affect Nigeria's real GDP. A positive coefficient of 0.005630 suggests a little but non-significant rise in GDP with increased expenditure on education. Consistent with previous research, this supports the idea that education is crucial for building human capital, but its impact on economic growth is highly dependent on characteristics like educational quality and institutional effectiveness (Yahya et al., 2023; Bassey et al., 2022). The economic benefit of education expenditure might be enhanced by policies that aim to improve educational results and better match educational investments with economic demands.

CONCLUSION

The purpose of this research was to analyze the relationship between government spending on human capital and economic development in Nigeria from 1986 to 2023. The found out show that despite a lack of statistical significance, public health spending has a

favorable effect on Nigeria's economic development. Also, Spending on public education in Nigeria improves economic performance, while the effect is not statistically significant. Conclusively, the study revealed that government spending on human capital has significant impact on economic development in Nigeria

RECOMMENDATIONS

The study recommends that policymakers should prioritize the effective distribution and administration of health resources due to the substantial beneficial effect of public health spending on economic performance. To achieve this goal, investments should be made in healthcare infrastructure, medical personnel training, and the implementation of robust health policies to ensure effective service delivery across Nigeria.

It was also recommended that the need for reassess public education spending is crucial to reevaluate educational expenditures strategically, given that public education investment has a favorable but negligible effect on economic performance. So that the Nigerian workforce may be better prepared to contribute to economic productivity, efforts should be made to enhance educational quality, adapt curriculum to meet the needs of the labor market, and improve educational infrastructure.

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