Domestic Public Investment in Education and its Impact on the Economic Growth in Nigeria (1999 – 2022)

Abada Uchechukwu Daniel, PhD [1]; Okoli, Basil Izundu [2]; Ogbonna Martin Ifeanyi, PhD [3]

[1 & 3] *Department of Accountancy, Madonna University Nigeria, Okija Campus.*

[2] *Department of Business Management & Marketing, Baze University, Abuja, Nigeria.*

Correspondence: [1] ucheabada3@gmail.com; 0802 386 2353

[2] basokoli@yahoo.com

[3] Ogbonnamart1@gmail.com

Abstract

Research Objective: This study evaluated the impact of domestic public investment (DPI) in education on economic growth in Nigeria from 1999 to 2022, with the goal of determining if increased government spending in education positively influences the nation's economic productivity.

Methodology: The research utilized DPI data in education from the Central Bank of Nigeria's statistical bulletin for the period 1999-2022. Linear regression and the ordinary least squares (OLS) technique, along with Granger causality analysis, were employed to assess the relationship between DPI in education and economic growth.

Findings: The study revealed that DPI in education did not have a positive or significant effect on economic growth in Nigeria during the 23-year study period. Additionally, no causal relationship was found between DPI and economic growth.

Conclusion: The findings suggest that the current government spending in education is insufficient to drive economic growth.

Recommendation: that the Nigerian government retool its expenditure policies in education to better support long-term economic development.

Key words: *Education Sector, Domestic Public Investment, Expenditure policy, Economic Growth.*

1.0 Introduction

A poor economic growth of a nation is a cautious indicator of declining or stagnant human capital development (e.g., quality or quantity of education, and health), and it remains a daunting developmental concern in low- and middle income countries, including Nigeria. For example, a recent global World Bank human capital index reported that Nigeria ranked 168 out of 173 countries in 2020, indicating a low improvement in education and health, which may in turn lead to poor economic growth (World Bank 2020, human capital index).

Notably, the economic growth in Nigeria can be effectively improved with optimal domestic public investment (DPI) as previously suggested by (Rabnawaz & Jafar, 2015), particularly in the educational sector. A DPI is referred to as an investment (i.e., infrastructural outlays) made and implemented by a government of a country within its territory to improve economic growth and wellbeing of its citizens. Education remains a key component of economic growth, therefore, adequate DPI in education will enhance human capital development (e.g., knowledge and information acquisition, produce skilled and competitive labor force), resulting in the increase and improved productivity of goods and services (Aigbedion, Iyakwari & Gyang, 2017).

Despite the fact that education plays an important role in scientific and technological advancement, public investments by the Nigerian government in education have yielded little or no improvement in economic growth. This is supported by Eluamah and Shobayo (2017) that investigated the commitments of the government to the educational sector as it relates to human capital development, and they opined that economic growth remains weak. Additionally, Abada, Okuma & Ugwu (2016), noted in their study that adult literacy in Nigeria is still low and other services, such as providing access to books, computers, and other resources for learning to the ordinary citizens have not seen appreciable improvements. Under-investment, economic waste and inadequate use of available resources in education could be largely attributable to the negative economic growth. Corruption has also constituted a major problem in Nigeria, and education sector

is not immune. Corruption can take many forms, including: procurement fraud, misappropriation of funds, ghost workers, nepotism and favoritism. These corrupt practices can lead to significant economic waste. It has really been difficult to enhance value for money and transparency in education spending in Nigeria.

Education in this study is represented by the Federal Ministry of Education (FME) which is responsible for formulating and implementing policies on education at the federal level and overseeing the following areas of education: Basic Education; Tertiary Education; Teacher Education; Special Education; Adult and non-formal Education; Science and Technology Education; and Vocational and Technical Education. The Federal Ministry of Education works in collaboration with state and local governments to ensure that all Nigerians have access to quality education.

The study therefore aims to evaluate the effect of domestic public investment in education on economic growth in Nigeria from 1999 – 2022.

The following research question guided the study:

What is the effect of domestic public investment in Education on economic growth in Nigeria? As reflected by the problem statement and specific objective, the following null hypothesis was formulated.

Ho. Domestic public investment in education does not have a positive and significant effect on economic growth in Nigeria.

2.0 Literature Review

Public Investment and Economic Growth.

In recent times, there has been an acknowledgement that capital spending is technically different from other types of government spending. As opined by Fainboim, Last and Tandberg (2013),It is difficult to estimate costs accurately because capital investment is often 'one off' and technically complex. This often leads to review of the project costs in subsequent years. (Akinlabi, Kehinde) & Jegede, 2011).

Public investments create lasting assets that need to be maintained. The import of this is that the decision on whether to go ahead with a project today creates future financing obligations for operation and maintenance (Gbani & Dini, 2006).

Public investment, most often, is exposed to political pressures. The reasons why politicians and citizens pay close attention to decisions on whether to embark on public investment is usually

because of the large sums involved and the visibility of such investment, and the fact that its benefits are specific to particular locations (Kumo, 2012).

The nature of public investment also makes it particularly prone to corruption. As contained in World Bank (2011), the roads sector worldwide is plagued by the dangers of widespread fraud, corruption and collusion. Investment projects are also a common source of waste. As found by Rasul and Rogger (2015), 38% of planned Nigerian government projects are never even started. However, it will be difficult to prioritize public investment decisions because of the tradeoffs between physical and human capital formation, as well as between the interests of present and future generations which cannot be easily quantified. An increase in public investment will positively affect economic growth in more than a way. It will have a positive effect on aggregate demand and also can contribute to the economy's productive capacity by increasing the stock of public capital (Leeper, Walker & Yang, 2010). Public investment can therefore serve as an important channel for economic growth as it ensures efficient delivery of key public services which in turn connects people to economic opportunities.

Domestic Public Investment in Education and Economic Growth

Education is usually regarded as a sustainable route to economic prosperity as it combats unemployment and ill-health, and confirms a sound fountain of social equity, awareness and cultural viability (Yousra, Aziz & Monir, 2014). Education plays an important role in human capital development and this encompasses the quality of education, the general state of health of the working population and various forms of training. A well educated workforce is essential for economic growth as it ensures increased productivity and innovation which drive economic development, by creating more jobs and opportunities for all.

As noted by Ezekwesili (2013), the quality of life of any nation cannot be expected to be more than the quality of the education of her citizenry and the intentional investment in the education system. According to the constitution of the Federal Republic of Nigeria;

Education is a right which the government pledges to do all that is possible in ensuring the people receive the best.

This stands to reason that the government has an understanding of the importance of Education. The most important macroeconomic objective of a developing country like Nigeria remains how to achieve accelerated economic growth and reduce poverty. To be able to achieve this, certain variables which have the ability to accelerate growth have to be identified (Aigbedion, Iyakwari

& Gyang, 2017). Of all these factors that ensure increased productivity and economic growth, Human capital stands out which implies that effective investment in Human capital through the provision of quality education is a key component (Adamu, 2003). On the microeconomic effect, the consensus is that on the average, more education tends to increase the individual's earnings and therefore ensures a better standard of living. Education generally is a key to creating, adapting and spreading knowledge.

Public investment in Education enhances human capital directly. One must at least be able to read, write, and cipher to hold even menial jobs in the current job market. Higher education therefore, is necessary to hold better jobs. There is no doubt that education is of immense benefit to the individuals and economy at large. Education enables the recipients to become more informed, more adaptable to change, more sociable, more cultured etc. These added benefits provide the justification for public investment on education (Becker & Lewis 1993). Conceptually the value of these added benefits define the social return on education.

Challenges and Opportunities in Nigerian Education System

Nigeria's education system faces significant challenges, but also holds immense potential for growth. Areas that need improvement in the education sector can be categorized as follows: funding, teacher quality, curriculum, infrastructure, equity etc. Limited resources impact infrastructure, teacher training, and access to quality materials. Also, inadequate training and low morale affect teaching effectiveness. Many institutions lack basic facilities like electricity, libraries and laboratories. Disparities in access and quality exist between urban and rural areas, and between genders. Notwithstanding, there exist opportunities for growth in the sectors such as leveraging technology for online training, teacher training, and resource sharing. Also, private sector involvement becomes imperative, as it will ensure investment in education infrastructure and innovation, improving teacher training programs and providing ongoing professional developments; and involving communities in the education process. By addressing these challenges and capitalizing on the opportunities, Nigeria can build a stronger and more equitable education system for its future generations.

Empirical Review

Chude & Chude (2013) in the work 'Impact of government expenditure on economic growth in Nigeria' investigated the effect of public expenditure in education on economic growth in Nigeria over the period 1977-2012 with particular focus on disaggregated and sectoral expenditures analysis. They came out with the result that expenditure on education is highly and statistically significant and has a positive relationship on economic growth in Nigeria.

Obi & Obi (2014) examined the 'Impact of government expenditure on education: the Nigerian experience; using ordinary least squares to analyze the relationship between gross domestic product and recurrent education expenditure. The findings revealed that though positive relationships persist between education expenditure and economic growth there is no long run relationship between the variables over the period of study. This anomaly was attributed to labor market distortions and leakages in the economy such as brain drain, among others.

Adeyemi and Ogunsola (2016) in the study: 'The impact of Human Capital development on economic growth in Nigeria: ARDL Approach'. The study set out to explore the relationship between human capital indices (Education and health) and economic growth. The findings from the study revealed that there is a positive relationship between investment in education, gross capital formation and economic growth.

Adekola (2014) in his work: 'Public investment in human capital and economic growth in Nigeria: Analysis on regime shifts', was able to establish the fact that government spending on human capital (education and health) impacted positively on economic growth in Nigeria. Yousra, Aziz & Monir (2014) in the work 'Public spending on education and economic growth in Algeria': 'Causality test', used an endogenous growth model to study the relationship between investment in education and economic growth. The result supports the main hypothesis of the study that public spending on education affects positively economic growth in Algeria. Gyimah-Brempong, Paddison & Mikitu (2006) examined 'Higher education and Economic growth in Africa'. The study used a modified neoclassical growth equation, and a dynamic panel estimates to investigate the effect of higher education and human capital on economic growth in African countries. The result revealed a growth elasticity that is twice as large as the growth impact of physical capital investment.

Eigbiremolen & Anaduaka (2014) studied 'Human Capital development and economic growth: The Nigerian experience using augmented Solow human-capital growth model to investigate the impact of human capital development on national output. They came out with the result that human capital spending is indispensable in the achievement of sustainable economic growth.

Rabnawaz and Jafar (2015) in the study, 'impact of public investment on economic growth', examined the relationship between Gross Domestic Product and public investment using time series data for empirical investigation. The findings revealed that there is a positive relationship between GDP and public investment in the short run. The result of the Granger causality test also showed that bi-causal relationship exists between GDP and public investment. Musibau & Pasak (2005) examined 'Long run relationship between education and economic growth in Nigeria: Evidence from the Johansen's cointegration Approach'. The Johansen's cointegration result establishes a long run relationship between education and economic growth. It also emphasized that a well educated labor force significantly influences economic growth both as a factor in the production function and through total factor productivity. Ogundipe & Oluwatobi (2013) examined 'government spending and economic growth in Nigeria: evidence from disaggregated analysis'. The researchers investigated the impact of both recurrent and capital expenditure on growth performance using an econometric analysis based on Johansen technique for the period 1970-2009, and found education and health components of total expenditure impacting positively on growth rate.

Aigbedion, Iyakwari, & Gyang (2017) in their work' 'Education sector and Economic growth in Nigeria; an impact analysis', employed the use of ordinary least squares tools in investigating the impact and relationship among the economic variables. They came out with the result that investment in education has a positive impact on economic growth of Nigeria.

Baghebo and Edoumiekumo (2012) examined the relationship between 'Public Capital accumulation and economic development in Nigeria' using Johansen's cointegration test to establish long run equilibrium relationship among the variables. The findings reveal that there exist a positive relationship between public capital accumulation and economic development in Nigeria

3.0 Methodology

This study adopted an *Ex post Facto* research design. The data were sourced from the Central Bank of Nigeria Statistical Bulletin. The data collated were analyzed using Error correction model (ECM) among others and data analysis was carried out with the aid of Eviews 8.0 statistical software.

Model Specification

In this research, domestic public investment in the education sector serves as the independent variable while economic growth captured with real gross domestic product serves as the dependent variable.

The model specified the equation for estimation as follows:

RGDP = f (DPE) ………………………………………………………….… (1) The model is expressed in implicit and explicit forms below:

In Implicit Form: RGDP = *f* *(DPE)*…………………………………………….… (2) Explicit: as econometric equation;

$RGDP_t = \beta_0 + \beta_1 DPE$……………………………………………………………. (3) Where,

f = Functional Relationship

DPE = Domestic Public Investment on Education Sector

β = The Parameters of the independent variable to be estimated.

μ= Stochastic Error Term

t = Time Period

Results

4.0 Data Analysis

Table 1: Data Presentation

YEAR	RGDP (₦' Billion)	DPE (₦' Billion)
1999	5307.360	43.61000
2000	6897.480	57.96000
2001	8134.140	39.88000
2002	11332.25	80.53000
2003	13301.56	64.78000
2004	17321.30	76.53000
2005	22269.98	82.80000
2006	28662.47	119.0200
2007	32995.38	150.7800
2008	39157.88	163.9800
2009	44285.56	137.1200
2010	54612.26	170.8000
2011	62980.40	335.8000
2012	71713.94	348.4000

2013	80092.56	390.4200
2014	89043.62	343.7500
2015	94144.96	325.1900
2016	101489.5	339.2800
2017	113711.6	403.9600
2018	127736.8	465.3000
2019	144210.5	593.3300
2020	152324.1	646.7500
2021	173527.7	620.5900
2022	199336.0	702.9800

Source:*Central Bank of Nigeria (CBN) Statistical Bulletin, 10.*

Where:

RGDP = Real Gross Domestic Product

DPE = Domestic Public Investment in Education Sector

The data in Table 1 above is a time series secondary data covering the variable under study. The data are ranging from 1999 to 2022. They were extracted from the Central Bank of Nigeria (CBN) statistical bulletin 2023.

Table 2: Regression Analysis

Dependent Variable: RGDP

Method: Least Squares

Date: 06/04/24 Time: 10:58

Sample: 1999 2022

Included observations: 24

Variable Coefficient Std. Error t-Statistic Prob.

DPE 266.5735 11.31032 23.56906 0.0000

C -3849.876 3929.509 -0.979735 0.3379

R-squared 0.961905 Mean dependent var 70607.89 Adjusted R-squared

0.960173 S.D. dependent var 57365.56 S.E. of regression 11448.24 Akaike info criterion 21.60872 Sum squared resid 2.88E+09 Schwarz criterion 21.70689 Log likelihood -257.3046 Hannan-Quinn criter. 21.63476 F-statistic 555.5007 Durbin-Watson stat 1.180076 Prob(F-statistic) 0.000000

Source: Eviews 11 Statistical Output, 2024

Table 2 depicts that Domestic Public Investment in the Education Sector exerts a positive and significant effect on Nigeria's Real Gross Domestic Product, indicated by a t-statistic of 23.56906 and a p-value of 0.0000, respectively. The adjusted R-squared (R^2) suggests that approximately 96% of the variations in Real Gross Domestic Product can be attributed to Domestic Public Investment in the Education Sector. The remaining 4% may be influenced by other factors affecting Real Gross Domestic Product in Nigeria, as well as other remote factors accounted for by the error term. The probability of the F-statistic is significant (0.000001), indicating the statistical adequacy of the multiple regression model and its results. Furthermore, there is no evidence of serial autocorrelation in the data obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin, as suggested by the Durbin-Watson statistic of 1.180076, which falls within the normal range.

Test of Hypotheses

Restatement of the Hypothesis in Null and Alternate forms

Ho_1: Domestic public investment in education does not have a positive and significant effect on economic growth in Nigeria

Ha_1: Domestic public investment in education has a positive and significant effect on economic growth in Nigeria.

Statement of Decision Rule

Reject the null hypothesis (H_0), if the p-value of the t-statistics is less than 0.05. Otherwise accept the null hypothesis and reject the alternative hypothesis.

Decision

According to the regression results presented in Table 2, the analysis reveals a significant effect of domestic public investment in the education sector (DPE) on economic growth in Nigeria, as measured by real gross domestic product (RGDP). The impact exerted by domestic public investment in education on real gross domestic product is both positive and statistically significant. This suggests that an increase in domestic public investment in the education sector is likely to contribute positively to economic growth in Nigeria. With a P-value of 0.0000 for domestic public investment in the education sector being lower than the significance level of 0.05, the null hypothesis (H_0) is rejected in favor of the alternative hypothesis. Additionally, the study therefore accepts the alternate hypothesis that domestic public investment in education has a positive and significant effect on economic growth in Nigeria.

5.0 Conclusion and Recommendations

Conclusion

In conclusion, this study has shed light on the effect of domestic public investment in education on economic growth in Nigeria from 1999 – 2022. The regression analysis revealed a robust positive effect of investment in the education sector on real gross domestic product (RGDP), with the coefficient estimate for domestic public investment in education being statistically significant. This indicates that higher levels of investment in education contribute significantly to economic growth by fostering human capital development, productivity and innovation.

The high explanatory power of the regression model, as indicated by the adjusted R-squared value, underscores the importance of domestic public investment in education in driving variations in RGDP over the study period. The findings highlight the crucial role of education as a catalyst for economic development and emphasize the need for policymakers to prioritize and increase investment in the education sector.

Moreover, the research underscores the long-term benefits of investment in education, as educated individuals contribute to a skilled workforce and the development of knowledge-based industries. Therefore, sustaining and enhancing investment in education is essential for Nigeria to achieve sustainable economic growth, reduce poverty, and promote inclusive development.

Overall, the findings of this study provide empirical evidence supporting the notion that domestic public investment in education is a key determinant of economic growth in Nigeria. By investing

In education, policymakers can lay the groundwork for building a prosperous and resilient economy that benefits all segments of society.

Recommendation

Based on the findings of this study, it is recommended that policymakers in Nigeria prioritize and increase investment in the education sector as a strategic approach to fostering sustainable economic growth. By allocating more resources to education infrastructure, teacher training, curriculum development, and educational programs, the government can enhance human capital development, productivity, and innovation, thereby contributing to long-term economic prosperity. Additionally, targeted policies aimed at improving the quality, accessibility, and relevance of education across all levels are essential to maximize the positive impact of education investment on economic growth.

References

Abada, U.D, Okuma, N.C. & Ugwu, K.O. (2016). The effects of budgetary allocations on the education sector reform agenda: evidence from the Nigerian public sector. *International Journal of Social Sciences and Humanities Review. 6. 4. December,* *2016. 1-9.*

Adamu, P.A. (2003). The impact of human capital formation on economic development in Nigeria: an error correction approach, Human Resources Development Africa. Selected papers for the year 2002 Annual Conference, the Nigerian Economic Society (NES), Part two.

Adekola, A.I (2014) 'Public Investment in human capital and economic growth in Nigeria: analysis on regime shifts. Journal of economics and development studies. June 2014, 2. 2. 213-231.

Aigbedion, I.M, Iyakwari, A.D.B & Gyang J.E. (2017). Education sector and economic growth in Nigeria: an impact analysis. International Journal of Advanced Studies in Economics and Public Sector Management. IJASEPSM 5.3. December, 2017.

Akinlabi, B.H., Kehinde, J.S. & Jegede, C.A. (2011). Public infrastructures: an approach to poverty alleviation and economic development in Nigeria. The European journal of Humanities and social sciences, ISSN 2220-9425 4.1. Special Issue.

Baghebo, M & Edoumiekumo, S. (2012) 'Public capital accumulation and economic development in Nigeria: 1970-2010. International Journal of Academic Research in Business and Social Sciences. June 2012, 2. 6 ISSN: 6990.

Becker, W.E. & Lewis, D.R.(1993). Higher education and economic growth. Copyright(c) 1993 by Springer Science + Business media New York.

Chude, N.P & Chude, D.I. (2013). Impact of government expenditure on economic growth in Nigeria. International Journal for Business & Management Review 1. 4., 64-71, December 2013.

Eigbiremoleu, G.O. & Anaduaka, U.S (2014). Human capital development and economic growth: the Nigeria experience. International Journal of Academic Research in Business and Social Sciences. April ,2014. 4. 4. ISSN: 2222-6990.

Elumah , L.O. & Shobayo, P.B. (2017). Effect of expenditures on education, human capital development and economic growth in Nigeria. Nile Journal of Business and Economics. Nile JBE(2017)5:40 – 50. April 2017.

Ezekwesili, O. (2013). Budgetary allocation to the Education sector. Channels Television interview, October, 2013.

Fainboin, I., Last, D. and Tandberg, E. (2013). 'Managing public investment, in M. Cangiano, T. Curristine and M. Lazare (eds). Public financial management and its emerging architecture. Washington, DC: International Monetary Fund.

Gbani, E. & Din, M. (2006). The impact of public investment on economic growth in Pakistan. The Pakistan Development Review 45.1, 87-98.

Gyimah – Brempong, K., Paddison, O., & Mikitu, W (2006). Higher education and economic growth in Africa. Journal of Development Studies, 42. . 3, 509-529, April 2001.

Kumo, W. (2012). Infrastructure investment and economic growth in South Africa: a Granger Causality analysis. Working paper series No. 160. African Development Bank, Tunis, Tunisia.

Leeper, E.M., Walker, T.B and Yang, S.S. (2010). Government investment and fiscal stimulus. Journal of Monetary Economics: 57. 8. 2010, 1000-1012

Musibau, A.B & Rasak, A.A. (2005). Long run relationship between education & economic growth in Nigeria: evidence from the Johansen's co integration approach. Paper presented at Regional conference on Education in West Africa: Constraints & opportunities. Dakar,

Senegal, November 1st-2nd, 2005. Cornell University/CREA/Ministerede 1' Education du Senegal.

Obi, Z.C. & Obi, C.O. (2014). Impact of government expenditure on education: the Nigerian experience. International Journal of Business and Finance Management Research. IJBFMR 2. 2014. 42-48.

OECD, (2020). Education and Covid-19: focusing on the long–term impact of school closure. *OECD Policy Responses to corona-virus (covid-19), 29 June, OECD Paris*

United Nations Children's Fund (UNICEF), (2020). Financing the Recovery from Covid-19: Building Education Back Better. UNICEF Eastern and Southern Africa Regional Office; Social Policy and Education Working Paper, December, 2020/

Ogundipe, A.A. & Oluwatobi, S. (2013). Government spending and economic growth in Nigeria: evidence from disaggregated analysis. Journal of Business Management and Applied Economics. 11. 4. July, 2013.

Rabnawaz, A, & Jafar, R.M.S. (2015). Impact of public investment on economic growth: MPRA paper no. 70377 posted April 3, 2016. Online at https://mpra.ub.uni-muenchen.de/70377. Retrieved June 12, 2019.

Rasul, L. and Rogger, D. (2015). Management of bureaucrats and public service delivery: evidence from the Nigerian civil service. CEPR discussion paper No. DP11078. London Centre for Economic Policy Research. http://www.ucl.ac.uk/-uctpimr/research/CSS.pdf. Retrieved August 5, 2019.

World Bank (2011). Curbing fraud, corruption and collusion in the roads sector. Report of the World Bank integrity Vice Presidency, Operations Policy and Country Services, Washington, DC: World Bank.