

Government Expenditure on Education and Economic Performance in Nigeria

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ABSTRACT

The paper considers the relation that is established between government expenditure on education and economic performance in Nigeria. Education is seen here as representing one of the primary components of human capital formation, which is an important factor in modelling the endogenous growth. Investment in human capital is essentially important in achieving a sustainable economic growth; however, the greatest contribution is accomplished through investment in the quality and quantity of education. Time series data were collected between 1973 and 2016, and Ordinary Least Squares (OLS) technique was used to estimate the model. It was discovered that education investments have direct and significant impact on economic performance in Nigeria. It was therefore recommended that government at all levels should increase their funding on different segments of education in the country.

I. INTRODUCTION

Education is commonly regarded as the most direct avenue to a great percentage of the population out of poverty owing to the tendency for employment opportunities especially for higher skilled workers to be created which eventually leads to growth (Babatunde & Adefabi, 2005). Education plays a crucial role in the overall development of a nation. It is a key component of human capital formation and identified as an important factor in increasing the productive capacity of people.

Especially at the higher level, education contributes directly to economic growth by making individual workers more productive and indirectly by leading to the creation of knowledge, ideas, and technological innovation (Larocque, 2008). In most developing countries, improving the widening access to basic education is a preeminent objective of their governments. Education is seen as a right

and responsibility to be guaranteed to all generations (Omotor, 2004).

Education is valued for its immediate as well as its future benefits. This means that the distribution of educational investment affects future income distribution, thus, equity plays an important role in educational investment decisions. Education attracts direct financial returns in form of earning, contributes immensely to technological development both in terms of acquisition, adaptation, capital widening and deepening (Omotor, 2004). No improvement is possible with unimproved people.

The structural pattern of formal education in Nigeria is a 6-3-3-4 system. This system consists of six years of primary education, three years of junior secondary school, three years of senior secondary school, and four years of tertiary education. This replaced the old system of 6-5-2-4 system inherited from the colonial masters in 1984.

Educationists have acknowledged investment in education as one way the poor can escape from poverty. This can be achieved through well-targeted government spending and subsidy to the sector by redefining and sharpening the role of government in areas which has become key issues in modern development policy. The choice between investment in education and alternative investments such as investment in physical infrastructure depends on society's objectives, which are represented by governmental decisions, and on the analysis between costs of the investment versus the future benefit to be derived from that investment (Lawal and Wahab, 2011).

It is apparent that under-investment in education will constrain the skills, knowledge, competency of the people of the country and lead to economic retardation of such country. This is due to the fact that ignoring investment in education would mean ignoring major aspect of human capital development in the growth process, and leads to lowering the productive capacity of such

economy, hence, reducing the rate of economic growth. In the light of these, there are different problems which will be serving as stumbling blocks in the process of investment in education in Nigeria, these includes: Problem of erratic and improper funding of education with its effect on inadequate and obsolete books, ill-equipped laboratory etc.; Low school enrolment at all level of education in Nigeria which may be as a result of religious and cultural belief and gender sensitivity

The objective of this study is to examine the expenditure of government on education in Nigeria for the period 1973 to 2013. The relationship between education and economic growth in Nigeria needs to be further investigated not only with a view to confirming the results of previous studies (Gerathiri, 2015; Sulaimon, 2014; Omotor, 2014; Obi and Obi, 2014; Sikiru, 2013; Lawal, 2011), but also considering the level of educational decadence in Nigeria. This study will help to proffer some policy recommendation for both private individuals and government so as to improve investment in education in Nigeria as this is one of the major means of achieving both medium and long term socio-economic goal set up by nations and the various international organisations. The conclusion that would be drawn and the recommendation that would be made will serve as a guide for policy makers in recognising the importance of appropriate investment in education.

II. LITERATURE REVIEW

Government expenditure simply refers to the value of all goods and services provided by the public sector. This kind of expenditure is directed towards accelerating economic growth and development with the ultimate aim of transforming the nation into an industrialized economy as well as raising standard of living of the people. By and large, government expenditure is categorized into capital and recurrent expenditures. The capital expenditures are those government expenditures on capital projects such as roads, bridges, dams, electricity, education, health etc. while recurrent expenditures include expenditures of government on administration such as wages, salaries, interest, loan, maintenance etc. (Usman, Agbede & Bako, 2013).

In Nigeria, education is more of a public enterprise that has witnessed government's complete and dynamic intervention and active participation (FRN, 1981). It is the view of the formulated education policy in Nigeria to use education as a vehicle in achieving national development. Education being an instrument of

change, in Nigeria education policy has been a product of evolution through series of historical developments. The National Policy on Education in Nigeria launched in 1977 is geared towards individual and national efficiency, self-realization, national unity etc. and aimed at achieving social, cultural, economic, political, scientific and technological development. The objectives of the policy were broadened to include free primary education among others in 1985; hence it has been reviewed from time to time (Anyawu, Oyefusi, Oaikhenam and Dimowo, 1997).

However, elements of uncertainty have beclouded the sector in nominal and real terms. Other factors include lack of teachers and basic infrastructure, over-crowding, poor sanitation, poor management, poor intra-sectoral allocation, abandoned capital projects, inadequate funding, poor conditions of service etc (Chude and Chude, 2013). These most time led to closure of schools and strikes, which results to poor quality of teaching and poor quality of products

Two different schools of thought are been reviewed for the benefit of this study: the Wagner (1883) and Keynesian (1936) schools of thought. Adolph Wagner offered a model for the determination of public expenditure. Based on his empirical findings, it was concluded that an increase in the size of government expenditure is a natural consequence of economic growth. In other words, the Wagner's law propounded that the share of the government expenditure in GDP will increase with intensified economic development. This is consequent upon the social, administrative and welfare issues that increase with need and complexity as the economy grows. On the other hand, Keynes believes that public expenditure is a tool which government adopted to reverse economic downturns by borrowing money from the private sector and return it to them through various spending programs, hence economic growth is the outcome of public expenditure (Mutuku and Kimani, 2012; Obi and Obi, 2014).

Harrod-Domar (1946) growth model explained an economy's growth rate in terms of the level of saving and productivity of capital and suggests that there is no natural reason for an economy have balanced growth. The theory presupposed that growth rate depended on a country's saving rate, capital output ratio and capital depreciation. This implies that every economy must save a certain proportion of its national income, if only to replace worn-out or impaired capital goods (building, equipment, and materials). The simple economic growth model is expressed as:

$$\frac{\Delta Y}{Y} = \frac{s}{k}$$

Where $\frac{\Delta Y}{Y}$ represents the rate of change

or rate of growth of GNP, s is the saving rate and k is the capital stock.

Solow's model describes a developed economy better than a developing one; hence, it remains a basic reference point for the literature on growth and development. It implies that economies will conditionally converge to the same level of income, given that they have the same rates of savings, depreciation, labour force growth, and productivity growth. The key modification from the Harrod-Dorman growth model considered above is that the Solow model allows for substitution between capital and labour. In the process, it assumes that there are diminishing returns to the use of these inputs. He employed Cobb-Douglas production function and assumed that gross domestic product (Y) is a function of stock of capital, K (which may include human capital as well as physical capital), labour (L) and productivity of labour or knowledge (A), which grows over time (t) at an exogenous rate. This is mathematically expressed as:

$$Y(t) = K(t)^\alpha (A(t)L(t))^{1-\alpha}$$

Permani (2009) in his study on development strategy in East Asia concluded that this region give greater emphasis to education. His study found that there is positive relationship between education and economic growth in the East Asia. In the meantime, there is bidirectional causality between education and economic growth. Pradhan (2009) supported this finding and proved that education has high economic value and must be considered as a national capital. He suggested that this capital must be invested and his country, India, must capitalize this human capital development besides the physical capital that contributes to country's economic growth. Afzal, Farook, Ahmed, Begum and Quddus (2010) acknowledged that education has positive long-run and short-run relationships on economic growth in Pakistan. This is in line with findings from Lin (2003), and Tamang (2011) on their studies in Taiwan and India respectively. In addition, Baldacci, Clements, Gupta & Cui (2004) conducted a study on 120 developing countries from 1975 – 2000 and found out that there are positive relationships in the long-run between educational expenses and economic growth.

In the meantime, Becker (1964) argued that a man would definitely invest in education as it will give him a promising return in the future. He

assumed that, this rational decision will lead the individual to assure that the investment in education is efficient in terms of the cost, profits and opportunities cost that the person incurred while pursuing his education. Research by Lin (2004) on Taiwanese economy concluded that higher education has positive and significant impact on the country's economic growth. The author also compared the findings between disciplines and found that engineering and natural science played a vital role.

Empirical studies on Uganda economy by Musila and Belassi (2004) showed that an increase of 1% average in educational expenses for each labour will lead into 0.04% rise in national short-run production and 0.6% rise in long term production. Nevertheless, finding by Kakar, Kilji & Khan (2011) on their study in Pakistan concluded that there is no significant relationship between education and short-term economic growth but the educational development has impact in the country's long run economic growth. These findings demonstrated that government expenditure on education sectors does not only have a positive impact on a country's economic growth in a short run but in long run as well.

Apart from the contribution of education on national economic growth, it also plays significant in reducing income inequality. It was concluded that educational achievement and successfulness as well as human capital development would positively reduce income inequality (Phillipe, Peter & Fabrice 2009; Kakar et al., 2011). In general, there is a consensus among the researchers that education influenced economic growth by reducing poverty incidence, social imbalances as well as income equality. Moreover, it gives a positive impact to the poor and needy to improve their live. In this regards, Jung and Thorbecke (2003) suggested that education is a main instrument to alleviating poverty. It is argued that poverty alleviation can be achieved by giving education to the poor so that more job opportunities will be created, thus more income to the individual and a country. Yogish (2006) has also found that education is a promising investment to a country by producing skilled and high skilled labour force. This skilled and high skilled labour would definitely accelerate country's economic development and in consequence improve quality of life.

Despite the various positive findings on the effect of education and economic performances, several studies conversely demonstrated a different finding entirely. De Meulmester and Rochet (1995), concluded that the relationship between

education and economic growth are not always positive. Some has also argued that education is simply an application and it is not meant to improve economy.

Investment in education is just merely consumption. This is due to the fact that investment in acquiring knowledge or skills is for the individual interests only and does not contribute into the economic growth (Blaug, 1970 & Sheehan 1971). Devarajan, Swaroop and Zou (1996) in their empirical study on 43 developing countries showed that excessive government expenditure in education negatively correlated with the countries' economic growth. Moreover, Blis and Klenow (2000) argued that it was too weak to conclude that the education or school achievement significantly contributed the economic growth. This finding is based on their study among the 52 countries between 1960 and 1990.

Numerous studies discussed about the relationship of the public expenditure on education and the economic growth. The size of government expenditures in social sector and its impact on economic growth has emerged as a major public choice issue facing economies in transition (Okuneye, Maku & Ayinla 2008; Lawal and Wahab, 2011; Sakiru, 2011; Obi & Obi, 2014; Bexheti & Mustafi, 2015). They found that the response of growth to public education expenditure may be non-monotonic over the relevant range. The relationship depends on the level of government spending, the tax structure and the parameters of production technologies.

Mutuku and Kimani, (2012) employed the Engle and Granger two steps cointegration test, Granger causality test and time series aggregated data for the period 1960-2009 to test for the validity of Wagner's law for Kenya. The findings reveal that two versions of the law meet the necessary and sufficient condition hence, the Wagner's law holds in Kenya for the entire period under study. Oyinlola and Akinnibosun (2013) examined the relationship between public expenditure and economic growth in Nigeria during the period 1970-2009, using a disaggregated public expenditure level and Gregory- Hansen structural breaks cointegration technique. The result confirmed that there was a break in 1993 in which the political crisis that engulfed the nation was accountable, it also showed that economic growth and development are the main objectives of education and also regarded as the only instrument through which the society can be transformed

Other works in Nigeria have been concerned with explaining the growth of public expenditure in terms of growth of national income

that is testing Wagner's Law (Essien, 1997; Aregbeyen, 2006; Babatunde, 2007; Ighodaro and Oriakhi, 2010). These studies mostly used the cointegration method to determine the long-run relationship between public expenditure and economic growth except for Essien (1997) who used the two step procedure of Engle and Granger (2007) and standard causality test and also Babatunde (2007) who used the bound testing approach. The evidence emerging from these studies mostly showed no support for Wagner's law except Aregbeyen (2006) who confirmed the Wagner's law.

III. METHODOLOGY

3.1 THEORETICAL FRAMEWORK

This study is anchored on the theoretical framework of Robert Solow (1956) who in his celebrated work of the core factors influencing economic growth isolated a key exogenous factor which significantly impact growth potential among economies because of its level of dynamism. The Solow model focuses on four variables: Output (Y), Capital (K), labour (L), and "knowledge" or the effectiveness of labour (A). At any point, the economy has some of amount of capital, labour and knowledge Romer (2009), which is combined to produce output. It recognizes the interrelationship between economic growth and education in a structural equation model. The specification allows for the identification of the channels through which public education expenditure and other policy interventions affect economic growth over time.

The production function takes the form:

$$Y_t = f(K_t, A_t, L_t) \dots \dots \dots (1)$$

Where; Y_t = output at time t, K_t = capital at time t, L_t = labour at time t, A_t = knowledge at time t.

The model used in this paper is based on the aggregate production function

Capital (K) can be replaced with "E" where "E" is government expenditure on education. We can replace "K" with "E", and rewrite the equation as,
 $Y = A.K\alpha. L\beta. E\gamma \dots \dots \dots (2)$

Equation (2) given above, is used to develop the econometric model to determine the impact of government's education expenditure on economic growth. In accordance to statistical economics and economics characteristics, an appropriate model to explain equation (2) is through following non-linear model:

$$GDP = \alpha_0 + \alpha_1 GCF + \alpha_2 SSE + \alpha_3 TE \dots \dots \dots (3)$$

The above equation is stated in econometric form as follows

$$GDP = \alpha_0 + \alpha_1 GCF + \alpha_2 SSE + \alpha_3 TE + \mu \dots \dots \dots (4)$$

3.2 DATA MEASUREMENT AND SOURCES

Using the functional form that relates the share of public expenditure on education in GDP with real gross domestic product and the equation is a non linear model, parameter values for GDP, GCF, SSE and TE are not able to be directly estimated. Gross Domestic Product is a proxy for economic growth performance while investment in education is proxy by total public expenditure on education. Therefore, it is suggested to amend the production function into log-linear model as follows:

$$\text{LogGDP} = \alpha_0 + \alpha_1 \text{logGCF} + \alpha_2 \text{logSSE} + \alpha_3 \text{logTE} + \mu \dots \dots \dots (5)$$

While logGDP, logGCF, logSSE and logTE are log of Gross Domestic Product, Gross Capital Formation, Secondary School Enrolment and Total Expenditure on Education respectively, while $\alpha_0, \alpha_1, \alpha_3$ are Parameter Estimates. It is expected that estimates of TE, SSE and GCF are positive. This study depends solely on secondary sources of data sourced from Central Bank of

Nigeria (Statistical Bulletin and Annual Report and Statement of Accounts) and National Bureau of Statistics (NBS) publication, annual time series data covering the period from 1973-2013 will be employed. The choice of this institution seems to be reliable in producing data of this nature while the choice of these proxies is supported by development literature (Ayara 2003 & Oladoyin 2009) which employed ordinary least squares approach with data not covering recent estimates. The contribution of this study to knowledge is in terms of the estimation techniques employed and the data used which is extended to 2013.

3.3 DATA ESTIMATION TECHNIQUES

The Ordinary Least Squares (OLS) is employed in the estimation of the model being the best linear unbiased estimator. Prior to this, pre-test analysis; Descriptive Statistics and correlation matrix, unit root test were conducted on the variables employed.

IV. RESULTS AND DISCUSSIONS

4.1 PREMINARY ANALYSIS

Table 1: Descriptive Statistics

	LogGDP	LogGCF	LogSSE	LogTE
Mean	13.53110	2.622112	2.929050	3.350394
Median	13.43552	2.538758	3.217272	3.005683
Maximum	17.56258	3.561042	3.780299	7.989221
Minimum	9.063058	1.698733	1.483167	0.463734
Std. Dev.	2.701932	0.558953	0.680843	1.466881
Skewness	0.057298	0.368338	-1.052390	0.881954
Kurtosis	1.533432	1.885177	2.605883	4.228290
Jarque-Bera	3.696755	3.050270	7.833443	7.892610
Probability	0.157492	0.217592	0.019906	0.019326
Observations	41	41	41	41

Source: Author, 2020

The table above displays the summary statistics for the dataset used in the study. The mean and median values of Gross Domestic Product (GDP), Gross Capital Formation (GCF), Secondary School Enrolment (SSE) and Total

Expenditure on Education (TE) fall within the range of the maximum and minimum values, the Jarque-Bera values (3.697, 3.050, 7.833 and 7.892) that are not significant shows that the variables are normally distributed.

Table 2: Correlation Matrix

	LGDP	LGCF	LSSE	LTE
LGDP	1.000000			
LGCF	-0.703466	1.000000		
LSSE	0.800760	-0.800490	1.000000	
LTE	-0.147738	-0.042861	-0.098194	1.000000

Source: Author, 2020

In addition, table 2 above shows the level of association among variables. The level of association of Secondary School Enrolment has a high positive value which indicates a high

correlation while Gross Capital Formation and Total Expenditure on Education have a low correlation.

4.2 UNIT ROOT TEST RESULT

Variables	Level			First Difference			Order of Integration
	Without Constant	With Constant	With Constant and Trend	Without Constant	With Constant	With Constant and Trend	
IGDP	6.5712	-0.8303	-1.3369	-1.9936	-6.1470	-6.0366	I(1)
LGCF	-2.0920	-2.1461	-0.7211	-5.4878	-5.6179	-6.2496	I(1)
LSSE	1.5070	-2.1591	-1.7161	-3.4600	-4.1090	-4.2281	I(1)
LTE	-1.3170	-4.3807	-4.4125	-5.6134	-5.6034	-5.5427	I(0)

4.3 CONFIRMATORY ANALYSIS

Variables	ADF	KPSS	Decision
LGDP	I(1)	I(0)	Inconclusive (Non Stationary)
LGCF	I(1)	I(0)	Inconclusive (Non Stationary)
LSSE	I(1)	I(0)	Inconclusive (Non Stationary)
LTE	I(0)	I(1)	Inconclusive (Non Stationary)

4.2 ORDINARY LEAST SQUARES (OLS) RESULT

Table 3: Empirical analysis of Goss Domestic Product, Gross Capital Formation, Secondary School Enrolment and Total Expenditure on Education (1973-2013)

Variable	Coefficient	T statistics
Constant	0.845421	1.895641
LGCF	-0.150940	-1.800387**
LSSE	-0.052743	-0.636244
LTE	0.041834	2.172707*
R-Squared	0.996247	
Adjusted R-Squared	0.995818	
F- Statistics	0.000000	
Durbin-Watson Statistics	1.863314	

Source: Author, 2017.

Note: (i) logGDP is the Dependent Variable
(ii) * (**) implies 5% (10%) significance level.

The table above shows the relationship between Dependent Variable (GDP) and the independent Variables (LSSE, LGCF & LTE). The explanatory power of the model is able to explain 99% of the total variation in the Gross Domestic Product (GDP) of the economy. This shows that the model has high goodness of fit.

The value of F-Statistics shows that the model is statistically significant at 5%. This indicates that the explanatory power of the model significantly explains the dependent variable. Also, the value of Durbin Watson statistics (1.863314)

close to 2 indicates that there is no serial autocorrelation among variables.

The coefficients of LGCF and LSE are negative -0.15094 and -0.05274 respectively, while the coefficient of LTE is 0.0418. The economic implication is that a unit change in GCF and SE has negative has 15% and 5% decrease GDP respectively while a unit change in TE has 4% increase in GDP.

V. CONCLUSION AND RECOMMENDATION

This paper aimed at analyzing the federal government expenditure on the education sector. A profile of expenditure in this sector is relatively low and poor in real terms. This is further confirmed by the regression analyses. Although increase in total government expenditure on education seems to have a positive effect on the growth of the economy, the magnitude is low; this implies that the funds set aside for the educational sector are not properly managed and channelled to where needed. It is recommended that since Nigeria is highly a monoprodukt economy, efforts must be geared up to sustain and enrich other sources of financing the sector like the Education Tax Fund, while policies aimed at diversifying and broadening the Nigerian economy rekindled. It is further recommended that tertiary educational institutions look in-ward by investing in both the services and manufacturing sectors. This will also afford both staff and students the required practical experience needed in the world of works.

VI. RECOMMENDATIONS

- Government should ensure that capital expenditure and recurrent expenditure are properly managed in a manner that it will raise the nation's production capacity.
- Government should direct its expenditure towards the productive sectors like education as it would reduce the cost of doing business as well as raise the standard living of poor ones in the country.
- Effort should be made to increase government funding on education to curtail the level of strike in our education sector and as well increase funding on anti-graft or anti-corruption agencies like the Economic and Financial Crime Commission (EFCC), and the Independent Corrupt Practices Commission (ICPC) in order to arrest and penalize those who divert and embezzle public funds.

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