Government Expenditure on Human Capital and Economic Growth in Nigeria

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Abstract
This paper examines the effect of government expenditure on human capital on economic growth in Nigeria between 1981 and 2015 using Mankiw, Romer and Weil (1992) model and Autoregressive Distributed Lag (ARDL) technique. Data on government expenditure in education, health and other social services were sourced from the Central Bank Statistical Bulletin (CBN, 2015) while data on economic growth, proxy by growth in GDP and labour, proxy by labour force were obtained from World Bank Development Indicators (WDI, 2015). The result of the analysis revealed that government expenditure on education and other social services have a positive but insignificant effect on economic growth while expenditure on health has a negative but insignificant effect on economic growth both in the short and long run within the study period. The study therefore recommends the government to implement an appropriate policy to ensure proper management and efficient allocation of funds to education, health and other social service sectors in the country. In addition, education, health and other social sectors should be upgraded to prevent citizens from migrating to other countries for better preferences.

Keywords: Human capital, Government expenditure, Economic growth, Autoregressive distribution.

Introduction

No country can achieve sustainable economic growth without a reasonable expenditure in human capital. As the global economy shift towards the knowledge-based economy, skills and human capital has become a central issue for policy-makers and practitioners engaged in fostering economic growth. Human capital is a broad concept which identifies human characteristics which is acquired and aimed at increasing income; commonly viewed to include peoples' knowledge and skills; acquired partly through education, their strength and vitality, which are dependent on their health, nutrition and an atmosphere that paves way for human development through government social services. It is of paramount concern that human capital theory which focuses on health and

education as inputs to economic production is in contrast to the concept of human development which views health and education as intrinsically valuable outcomes to be placed alongside economic production as measures of human welfare.

According to ADB (1998), human capital development is an essential means of sustained economic growth and poverty reduction and also an end in itself. World Bank (1995) in the assessment of 192 countries examined the contribution of human capital to development and concluded that human capital on the average, accounts for 64% of the total wealth, while physical and natural capital accounts for 16% and 29% respectively. The goal in investment in education is to create the skills and attitudes needed for higher levels of productivity and growth. The significance of education in nation building cannot be overemphasized since its economic contribution benefits both the individual directly and the society indirectly (Enueme, 1999). Investment in education and training is imperative to propel the economy to higher level of productivity and income and thereby accelerate the rate of economic growth in developing countries. Education enhances the number of knowledgeable workers by improving their skills and exposing them to new challenges.

The progressively large availability of international data on health care has led to the development of a vast array of studies disentangling the underlying factors that determine health care expenditure, such as income, aging, time effects and availability of factors. Ichoku and Fonta, (2006) observed that increased budgetary allocation to health has assisted some heavily-indebted poor countries to fight poverty and raise the standard of living of the people. It is therefore expected that budgetary allocations to health sector would improve health outcome and reduce all kinds of mortality rate. In Nigeria, government expenditure has always been on the increase due to the flow of revenue from production and sales of crude oil. This is however accompanied by huge demand for public goods such as roads, electricity, education, health, external and internal security and so on.

Within this context, statistics has it that government expenditure (capital and recurrent) have continued to rise in the last forty (40) years. For instance, total capital and recurrent expenditure according to Taiwo and Agbatokun (2011) increased from N10, 163.3million in 1980 to N24, 048.6million and then N36, 219.6million in 1990 and further increased to N46, 160million in 2000. Starting from 2001 to 2009, it increased from N438, 696.5million to N579, 300million and then from N1, 152,796.6billion to N2, 131,906billion respectively. Similarly, the

increase in expenditure feature more on education, internal and external security, health, agriculture, construction, transport and communication. Education expenditure as a ratio of total government expenditure between 1975 and 2007 averages 6.97% and varies from 2.22% to 14.30%. This fell below the minimum standard of 26% of annual budget prescribed by the United Nations Scientific and Cultural Organization.

The emerging trend shows that education expenditure as a ratio of GDP follows the same trend. It ranges from 0.39% to 7.86% with a mean of 1.62% (Dauda, 2011). Public health expenditure in Nigeria accounted for just 20-30% of total health expenditure, private expenditures on health account for 70-80% of total health expenditure. The prevailing private health expenditure is out-of-pocket expenses, and this accounts for more than 90% of expenditure in health. Out-of-pocket expenditure as a proportion of total health expenditure averaged 64.59% from 1998 to 2002. In 2003, it accounted for 74% of total health expenditure (THE). It decreased to 66% in 2004 and later increased to 68% in 2005 (Soyibo, 2005; Soyibo, Olaniyan and Lawanson, 2009). This implies that households bear the highest burden of health expenditure in Nigeria.

The $5 per capita expenditure on health in Nigeria is far below the $14 recommended by World Bank for Africa and much lower than the $34 per capita recommended by the World Health Organisation Macroeconomic Commission for Health for low-income countries to provide basic health care services. Remarkably, the federal government budgetary component of health expenditure in Nigeria has increased over the years. It increased from 1.7% in 1991 to 7.2% in 2007 (WHO, 2009; NHS, 2011). Nevertheless, the budgetary allocation for health is still below the 15% signed by the Nigerian government in the Abuja declaration (WHO, 2009). Given this level of government spending, it will be very difficult to provide the essential health care services and with the unpredictable change of the oil prices in the world market and low tax base, health care will always be at the peril of underfunding by the Nigerian government.

Despite the increase in government expenditure, human capital has not translated into reasonable growth and development. Currently, Nigeria is still ranked as one of the poorest in the world attributed to uneven distribution of finance and facilities to the sector. On the other hand, despite the budgetary provision for human capital development, there is lack of adequate personnel and facilities to provide quality care for the citizenry. In view of the outcome of researchers from countries in which economic growth is accelerated by reasonable expenditure on

human capital and given the discrepancy emanating from the Nigerian economy, it is necessary to investigate whether expenditure in human capital is important in enhancing economic growth in Nigeria. The paper is organized into six sections. Following the introduction is the review of literature. The methodology of the paper is presented in section 3 while section four focuses on source of data and estimation technique followed by the results and discussion of findings respectively. The paper dwells into the policy implication of the result and then ends with conclusion and recommendations.

Literature Review

Empirical studies have provided evidence supporting a positive effect of government spending in education and health while other series of arguments and studies have emerged on the platform that increase in government spending do not actually promote growth and development, rather reduce overall performance of the economy. By employing two way linkages between economic growth and human development empirically with the use of cross-country statistics, Ramirez, Ranis & Stewart (1997) claimed that public expenditures on health and education represent an important link in determining the strength of the relationship between economic growth and human development. Two chains namely, economic growth to human development and human development to economic growth can generate self-reinforcing vicious cycles of development, as well as identifying lop-sided performance. Hence, even though both human development and economic growth should be encouraged together, human development should be given first priority.

Castro-Leal *et al.*, (1999) examined the effectiveness of public social spending on education and health care in several African countries. They found that these programmes favour not only the poor, but those who are better-off and concluded that the problem cannot be solved simply by adjusting the subsidy program. One of the most fundamental factors responsible for the weak target is the income elasticity of demand for education and health. Blooms and Sachs (1998) provided empirical evidence on the relationship between health variables and economic growth rates and found that health variables play a significant role in determining economic growth. By employing cross-country data between 1965 and 1990 and a basic growth model, they found that an increase in life expectancy by one percent accounted for an acceleration of GDP per capita growth by over 3% per annum. Adamu, (2003) empirically investigated the impact of human capital formation on economic growth in Nigeria between 1970 and 2000, using co-integration and Error Correction Mechanisms (ECM), the results indicated that investment in

human capital in the form of education and training can lead to economic growth due to its impact on labour productivity.

Davoodi *et al*., (2003) provided a primer on benefit incidence analysis for macroeconomists and a new data set on the benefit incidence of education and health spending covering 56 countries over 1960-2000, representing a significant improvement in quality and coverage over existing compilations. The study found among other things that overall education and health spending are poorly targeted and benefits from primary education and primary health care go disproportionately to the middle class, particularly in Sub-Saharan Africa, heavily indebted poor countries and transition economies. By employing covariance structure model for a sample of developing countries and transition economies, Baldacci *et al*., (2003) estimated the relationship between government spending on health and education and selected social indicators. The findings show that public spending is an important determinant of social outcomes, particularly in the educational sector and that there is strong evidence that increase in public spending do have a positive impact on social outcomes.

Dauda (2011) examined the effect of government educational spending and macroeconomic uncertainty on schooling outcomes in Nigeria using the econometric methods of cointegration and error correction mechanism together with the Vector Autoregression (VAR) methodology. The results indicated that schooling outcome cointegrated with all the identified explanatory variables. Furthermore, it was also found that public educational spending impacts positively on schooling outcome while macroeconomic instability impacts negatively. Uwatt (2003) provided empirical evidence on the role of human resource development proxy by enrolment in educational institutions on economic growth in Nigeria. The author used the augmented Solow growth model and relying on co-integration and error correction methodology, the results showed that human resource development does not only contribute positively to economic growth in Nigeria but its impact is strong and statistically significant.

In determining the relationship between human capital and economic growth in Pakistan and employing a health adjusted educational indicator for human capital in the standard Cobb-Douglas production function, Qadri and Waheed (2011) used time series data for the period 1978 to 2007. The result confirmed a long run positive relationship between human capital and economic growth in Pakistan and the study found out that human capital is positively related to growth. The health adjusted education indicator was found to be a highly significant determinant of

economic growth. Oluwatobi and Ogunrinola (2011) examined the relationship between human capital development efforts of the government and economic growth in Nigeria. The result shows that there exists a positive relationship between government recurrent expenditure on human capital development and the level of real output, while capital expenditure is negatively related to the level of real output. The study recommends appropriate channeling of the nation's capital expenditure on education and health to promote economic growth.

Uma *et al*., (2013) using quarterly data tested for time series property using Augmented Dickey- Fuller test for stationarity and Johansen test for co-integration. The empirical finding showed that there exist a long-run relationship between government expenditure and real gross domestic product. It also showed that expenditure on administration and total recurrent expenditure impacted significantly on real gross domestic product during the period of study while expenditure on economic services, social and community services have insignificant effect on real gross domestic product. Ayuba (2014) examined the causal relationship between public social expenditure (education and health) and economic growth in Nigeria for the period of 1990 to 2009 by applying the Vector Error Correction (VEC) model. It was found out that there is a unidirectional causality running from economic growth to health expenditure. The study also discovered that causality runs from economic growth to education and aggregate social expenditure.

Nigeria has found it difficult to grow her economy in her quest to become a knowledge-based economy because of the challenges faced in the national educational system (World Bank, 2010). According to the report, some of the major challenges limiting the advancement of Nigeria's educational system are low tertiary enrolment level, teaching with obsolete methods, strikes and administrative hiccups, lack of ICT infrastructure and poor funding. According to WHO (2001), the dominance of health-related problems could be attributed to the observed shortage of skilled medical workers at the level of primary health care. It also reported that only 41.9% of primary health care facilities provide antenatal and delivery services and 57.73% of these health facilities works without any midwife. In view of the outcomes of researches from developing countries in which economic growth is accelerated by reasonable expenditure on human capital, it is necessary to investigate whether expenditure in human capital (in form of government expenditure on education, health and other social services) has any significant effect on economic growth in Nigeria.

Methodology

The theoretical frame work for this study was based on Keynes theory of government spending blended with Augmented Solow human-capital-growth model. Keynes (1936) believed that during depression, government intervention was needed as a short term cure. Government will then increase public spending giving individuals, purchasing power and producers to produce more and thereby creating more employment. Keynesians also believe that increase in government spending will bring about increase in output. Keynes categorized government expenditure as an exogenous variable that can generate economic growth instead of an endogenous phenomenon. According to Ram (1986), government expenditure can help improve the level of productive investment, hence economic growth and development can be secured. Thus government expenditure has a positive impact on economic growth.

The Augmented Solow human-capital-growth model did not explicitly incorporate human capital; therefore, the justification for the inclusion of human capital in the model is the fact that non-homogeneity of labour in the production process either within a nation or across different economies is due to their possession of different levels of education and skills. For the purpose of this study, Mankiw, Romer and Weil (1992) Augmented Solow model was adopted. According to (Olaniyan & Okemakinde, 2008), the basic assumption in this approach is that increase in workers' quality through improved education improves output. This supports the human capital theory which postulates that education and healthcare of workers ensure greater productivity. The model is further modified to incorporate government's expenditure on social services (EOSS).

Going by the argument of Keynes which suggest the effectiveness of fiscal policy over monetary policy in developing countries due to the underdevelopment of financial system, the study incorporate fiscal policy in form of government spending (GS) in the model below:

$$Y = f(GS) \tag{1}$$

By introducing the control variables: capital and labour into the model, we have:

$$Y = f(K, L, GS) \tag{2}$$

Specifically, this study centres on fiscal policy variables of GS (government spending). Therefore, GS can be proxy by Expenditure on Education (EOE), Expenditure on health (EOH) and Expenditure on other social services (EOSS).
Due to the limitation of Keynes theory of the short run proposition, the Augmented Solow model is blended into the study to specify a long run analysis which as:

$$Y = AK^{\alpha}(hL)^{\beta} \tag{3}$$

where Y = Output level, K = stock of capital, h = Level of human capital, L = labour (proxy by labour force), A = level of total factor productivity, α = Elasticity of capital input with respect to output while β = Elasticity of labour input with respect to output.

Expressing equation (3) in the linear form, we have:

$$\ln Y = \ln A + \alpha \ln K + \beta \ln hL \tag{4}$$

where $h = f(EOE, EOH, EOSS)$

In incorporating the variables into the model, we have

$$\ln Y = \ln A + \alpha \ln K + \beta_1^E EOE + \beta_1^H EOH + \beta_1^S EOSS + \beta_2 \ln L \tag{5}$$

An econometric expression of the model above:

$$\ln Y = \ln A + \alpha \ln K + \beta_1^E EOE + \beta_1^H EOH + \beta_1^S EOSS + \beta_2 \ln L + \mu_t \tag{6}$$

where Y= Growth in GDP, K= Gross capital formation, EOE= Expenditure in education, EOH= Expenditure in health, EOSS= Expenditure in other Social services, L=Labour proxy by labour force measured by share of population, μ_t is the error term.

In explaining the effect of government expenditure on human capital and economic growth, this study assumed the following specification based on Hundie (2014), who examined the relationship among savings, investment and economic

growth in Ethiopia. Thus GDP proxy by growth in GDP is an increasing function of government spending.

$$GRO_t = \alpha + \varpi_i GCF_t + \varphi_i LEOE_t + \phi_i LEOH_t + \psi_i LEOSS_t + \chi_i LF_t + \mu_t \quad (7)$$

The Apriori Expectation: A positive relationship is expected to exist between expenditure on education, health and other social services while a negative relationship between gross capital formation and labour force.

Model Specification

The Augmented ARDL version of the model specified is:

$$\Delta GRO_t = \alpha_0 + \sum_{i=1}^{p} \beta_i \Delta GRO_{t-i} + \sum_{i=0}^{q_1} \varpi_i \Delta GCF_{t-i} + \sum_{i=0}^{q_2} \varphi_i \Delta LEOE_{t-i} + \sum_{i=0}^{q_3} \phi_i \Delta LEOH_{t-i} + \sum_{i=0}^{q_4} \psi_i \Delta LEOSS_{t-i} + \sum_{i=0}^{q_5} \chi_i \Delta LF_{t-i} + \delta_1 GRO_t + \delta_2 GCF_t + \delta_3 LEOE_t + \delta_4 LEOH_t + \delta_5 LEOSS_t + \delta_6 LF_{t-i} + \mu_t \quad (8)$$

The parameters δ_i where i =1, 2, 3, 4, 5, 6 are the corresponding long run multipliers while the parameters $\beta_i, \varpi_i, \varphi_i, \phi_i, \gamma_i, \chi_i$ are the short run dynamic coefficient of the underlying ARDL model. Thus, the hypothesis that will be tested relates to the null of the non-existence of a long-run relationship defined below: H_0: $\beta_1=\beta_2=\beta_3=\beta_4=\beta_5=\beta_6=\beta_7=\beta_8 =0$ (there is no long-run relationship) against H_1: $\beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq \beta_6 \neq \beta_7 \neq \beta_8 \neq 0$(there is a long-run relationship exists). The existence of a long-run relationship gives the ticket to proceed with the analysis. If there is evidence in support of a long-run relationship or cointegration among the variables included in the model, the long-run model above will be estimated:

The ARDL specification of the short-run dynamics may be derived from the error correction representation of the form:

$$\Delta GRO_t = \alpha + \sum_{i=1}^{p} \beta_i \Delta GRO_{t-i} + \sum_{i=0}^{q_1} \varpi_i \Delta GCF_{t-i} + \sum_{i=0}^{q_2} \varphi_i \Delta LEOE_{t-i} + \sum_{i=0}^{q_3} \phi_i \Delta LEOH_{t-i} + \sum_{i=0}^{q_4} \psi_i \Delta LEOSS_{t-i} + \sum_{i=0}^{q_5} \chi_i \Delta LF_{t-i} + \vartheta ECM_{t-i} + \mu_t \quad (9)$$

The symbol 'Δ' is the difference operator and the symbol 'ϑ' is the speed of adjustment parameter measuring how fast errors generated in one period are corrected in the following period .The error correction mechanism, ECM_{t-1} in this case is defined as:

$$ECM_t = GRO_t - \left(\alpha + \varpi_i GCF_t + \varphi_i LEOE_t + \phi_i LEOH_t + \psi_i LEOSS_t + \chi_i LF_t\right) \quad (10)$$

All coefficients of the short-run equation are coefficients relating to the short-run dynamics indicating the model's convergence to equilibrium following a shock to the system.

Method of Estimation and Source of Data

Stationarity test using Augmented Dickey-Fuller ADF unit root test was employed**.** The unit root test controls for possible serial correlation in error terms by adding the lagged difference terms of the regressand, thereby ensuring that a constant mean and variance exist in the series. This process is pertinent in ensuring that a unit root does not exist in the series, due to the fact that its existence leads to a spurious regression. The order of the lag distribution function is selected using one of the Standard Information Criteria such as Akaike Information Criteria (AIC), Schwartz Bayesian Criterion and others.

The ARDL bounds testing technique developed by Pesaran *et al*., (2001) relying on its numerous advantages is one of the recent methods for conducting cointegration analysis. It has a number of econometric advantages which includes the following: (i) It is appropriate irrespective of the degree of integration of the variables, either I(0) or I(1) or a mixture of the two; (ii) The long and the short run parameters of the model are estimated simultaneously since it takes into account the error correction term in its lagged period; (iii) The pre-testing of the order of integration of the variables is eluded; and (iv) ARDL bounds testing approach is more suitable and provides better results for small sample size, Haug (2002). These series of technique are essential to judge the validity and acceptability of the conclusions drawn from the model estimation.

Annual time series data spanning from 1981-2015 was employed. Data on government expenditure on education, health and other social services were sourced from Central Bank of Nigeria (CBN) Statistical Bulletin, while data on economic growth, proxy by growth in GDP and labour proxy by labour force was obtained from World Bank Indicators (WDI, 2015).

Results and Discussion

In examining the levels of integration of the variables, Augmented Dickey-Fuller (ADF) unit root test was employed in order to avoid a spurious regression. The result is therefore presented below:

Table (1): Unit Root Tests with Individual Intercept

	Levels		1st Difference		
Variables	**ADF Statistics**	**Critical Value**	**ADF Statistics**	**Critical Value**	**Remark**
GRO	-4.5140	-3.6329***			I(0)
LLF	-0.9756	-2.6230	-6.4206	-3.6793***	I(1)
LEOE	-1.6283	-2.6143	-6.0572	-3.6463***	I(1)
LEOH	-1.6902	-2.6143	-6.4544	-3.6463***	I(1)
LEOS	-1.7860	-2.6143	-6.4265	-3.6463***	I(1)
LGCF	-0.1789	-2.6174	-3.8023	-3.6617***	I(1)

Note 1: GRO, LF, EOE, EOH, EOS and GCF represent Growth in GDP, Labour Force, Expenditure in education, Expenditure in health, Expenditure in social services and Gross Capital Formation respectively

Note 2: The values in the square bracket [ ] are the probability values; (***) indicates significant at 1% level, (**) indicates significant at 5% level and (*) indicates significant at 10%

Source: Author's Computation

Table (1) shows the result of the unit root test in which GRO was stationary at levels, that is, variable is I(0) series while LLF, LEOE, LEOH, LEOSS and LGCF were stationary at first difference, that is, variable are I(1) series. The result of the order of integration show that the variables are integrated of different orders i.e. while ECG is stationary at levels, other variables in the model are stationary at fist difference. This indicates the adoption of ARDL method which is appropriate for the study.

The study employed a graphical analysis in selecting a suitable lag length for the variables.

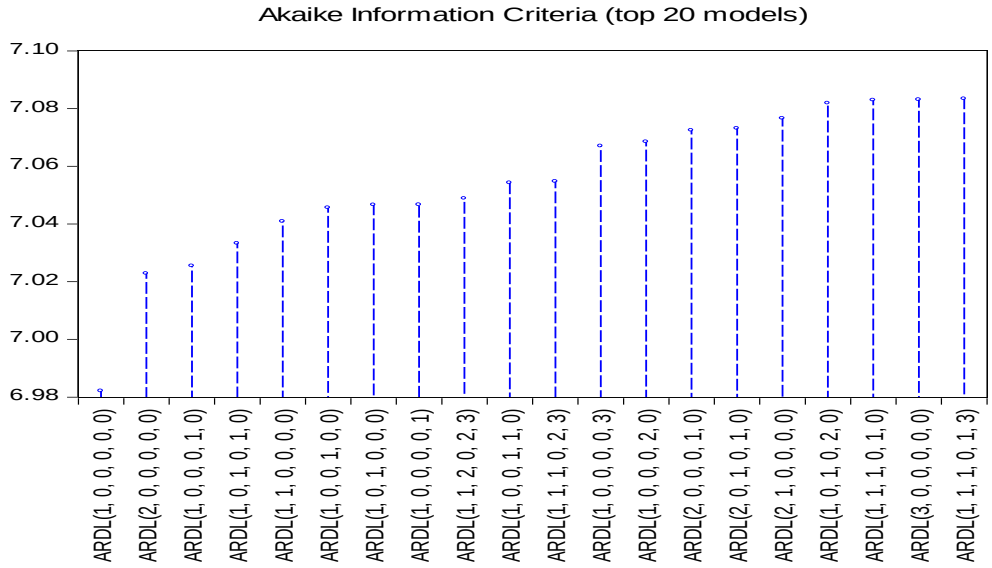

Figure (1): Lag Length Selection Criteria

The graph illustrated in fig. (1) shows the appropriate lag length for the model. ARDL (1, 0, 0, 0, 0, 0) was selected having the least information criteria, that is, Akaike information criteria (AIC).

Having tested the stationarity of each variables and confirmed that each series has different order of integration, the next step is to test for cointegration between the independent and dependent variables. In this step, this study investigates whether there is a long run relationship between the stochastic trends of an independent variable and dependent variables.

Table (2): Bound Test Analysis

F-Stat	5.5304	
K	5	
Bounds	**Lower**	**Upper**
10%	2.26	3.35
5%	2.62	3.79
1%	3.41	4.68

Source: Author's Computation

Table (2) reveals the Bounds testing for the ARDL models. The level of F-Statistics is given to be 5.5304 approximately and is greater than the upper bound at 1% level of significance (3.41, lower bound and 4.68, upper bound).

Table (3): Long run Result
Dependent Variable: Economic Growth (GRO)

Variables	**Coefficient**	**Standard Error**	**t-statistics**
LGCF	-2.0880	3.1704	-0.6586
LEOE	1.8483	4.2852	0.4313
LEOH	-1.7345	4.4047	-0.3938
LEOS	0.6653	1.7019	0.3909
LLF	13.3597	7.3512	1.8173*
Constant	-182.6894	109.8892	-1.6625

Note 1: GRO, LF, EOE, EOH, EOS and GCF represent Growth in GDP, Labour Force, Expenditure in education, Expenditure in health, Expenditure in social services and Gross Capital Formation respectively
Note 2: The values in the square bracket [ ] are the probability values; (***) indicates significant at 1% level ,(**) indicates significant at 5% level and (*) indicates significant at 10%

Source: Author's Computation

Table (3) reveals that a percentage increase in capital (GCF) brings about a reduction in economic growth by 2.09% approximately. A percentage increase in expenditure on education (EOE) brings about an increase in economic growth by 1.84% approximately while a percentage increase in expenditure on health (EOH) brings about a reduction in economic growth by 1.73% approximately. Furthermore, a percentage increase in expenditure on other social services (EOSS) brings about an increase in economic growth by 0.66% approximately. Then a percentage increase in Labour force (LLF) brings about an increase in economic growth by 13.35% approximately. However, all the variables show insignificance in the long run except for LF which shows a statistical significance of 10%.

Table (4): Short run Result
Dependent Variable: Economic Growth (GRO)

Variables	Coefficient	Standard Error	t-statistics
D(LGCF)	-2.1822	3.3550	-0.6504
D(LEOE)	1.9317	4.3796	0.4417
D(LEOH)	-1.8128	4.5049	-0.4023
D(LEOS)	13.9623	1.7724	0.3923
D(LLF)	-1.0451	7.9403	1.7584*
ECM(-1)	-1.0451	0.1886	-5.5408***

Note 1: GRO, LF, EOE, EOH, EOS and GCF represent Growth in GDP, Labour Force, Expenditure in education, Expenditure in health, Expenditure in social services and Gross Capital Formation respectively
Note 2: The values in the square bracket [ ] are the probability values; (***) indicates significant at 1% level ,(**) indicates significant at 5% level and (*) indicates significant at 10%

Source: Author's Computation

Table (4) reveals that a percentage increase in capital (GCF) brings about a reduction in economic growth by 2.18% approximately. A percentage increase in expenditure on education (EOE) brings about an increase in economic growth by 1.93% approximately while a percentage increase in expenditure on health (EOH) brings about a reduction in economic growth by 1.81% approximately. Furthermore, a percentage increase in Expenditure on other social services (EOSS) brings about an increase in economic growth by 13.96% approximately. Then a percentage increase in Labour force (LF) brings about a decrease in economic growth by 1.04% approximately. Thus, all the variables show insignificance in the long run except for LLF which shows a statistical significance of 10%. The Error Correction Mechanism [ECM (-1)] reveals that about 104% approximately of past errors were corrected in the current period and is significant at 1%, that is, the rate of adjustment towards equilibrium is at the rate of 104% approximately.

After the estimation of the empirical ARDL (1, 0, 0, 0, 0, 0) model, there are a variety of diagnostic tests which enhance the credibility of the model. The model was tested for autocorrelation (Breusch-Godfrey serial correlation LM test), heteroskedasticity (White test), normality test (Jarque-Bera) and specification error/omitted variables.

Table (5): Post Estimation Test

Tests	Obs*R/Jarque-Bera	Probability
Normality	73.5162	0.000
Serial Correlation	2.0945	0.3509
Heteroskedasticity	1.5422	0.9566
Functional form(t)	0.2663	0.7921
Functional Form(f)	0.0709	0.7921

Source: Author's Computation

Table (5) depicts the post estimation test for the estimated model. It shows that there is no serial correlation, there is the absence of heteroscedasticity and the functional forms are correct. However, the residual is not normal. These results imply that the model is valid and can be used for policy recommendations.

The Implications of the Result

The results of the study imply that the variables: expenditure on health, education and other social services have the tendencies to contribute to economic growth in the long run. It shows the true picture of the Nigerian economy in which government keeps increasing allocations to these sectors every year but the positive impact is not felt by its citizenry. This can be ascribed to the weak institutional quality of the country bringing about the setbacks in the economy. It is therefore inferred that most funds allocated to education, health and other social services are diverted into other unproductive activities which makes them insignificant to economic growth. In addition, money allocated to these sectors are not judiciously utilized in order to attain effectiveness of government spending. Furthermore, the positive variables in the model according to apriori expectation implies that the prediction of Keynes is true in that increase in government spending brings about economic growth in developing countries.

Conclusion

This paper empirically examines the effect of government expenditure on education, health and other social services in Nigeria using the autoregressive distributed lag (ARDL) framework using time series data covering the period from 1981- 2015. The data were sourced from the publications of the Central bank of Nigeria (CBN, 2015) Statistical Bulletin and World Bank Indicators (WDI,

2015). ADF unit root was used to test the stability while ARDL bound testing was employed to verify the long and short run relationship of the model used. The results of the unit root tests indicated the variables under study were I(0) and I(1) processes and the ARDL bound testing was consequently employed. The result of the analysis revealed that government expenditure on education and other social services have a positive but insignificant effect on economic growth in Nigeria while expenditure on health has a negative but insignificant effect on economic growth in Nigeria both in the long and short run within the study period.

Recommendations

The study recommends that the government should implement appropriate policy to ensure the proper management and efficient allocation of funds to education, health and other social services sectors in the country. Government agencies like EFCC, ICPC should be funded and empowered to regulate and probe government allocations at the federal, state and local level so that the benefit of these sectors may reach the citizens of the country and accelerate economic growth. In addition, education, health and other social sectors should be upgraded to prevent citizens from migrating to other countries for better preferences.

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